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ABSTRACT

Due to its sparse, rural population and long distances, Alberta province (Canada) has been providing education at a distance since 1923 for students in grades 1 through 12 and adults who wish to complete their high school education through correspondence. This handbook is published as a resource for Alberta schools that offer distance learning programs. Sections in the handbook cover: (1) Distance Learning in Alberta--the history and current goals of the Distance Learning Program; (2) Distance Learning Services--the Alberta Distance Learning Centre (ADLC), the Learning Resources Distributing Centre (LRDC), the Distance Learning Implementation Unit, and Inservice in Distance Learning; (3) Distance Learning Funding--requirements for eligibility and how to apply for funding; (4) Distance Learning Models--correspondence school-based model, computer-managed learning model, multi-subject and multi-school models, and a sample jurisdiction distance learning network; (5) Authority and Responsibility--the individual school, the school jurisdiction, the education consortium, and the Alberta provincial department of education; (6) Distance Learning Technology--print, computer-managed learning, teleconferencing, facsimile machine (FAX), electronic mail, computer conferencing, audiographic teleconferencing, six keys to successful teleconferences, and video; (7) Classroom Planning--operational responsibilities of the superintendent, teacher, school coordinator, principal, and consortium-coordinator; and (8) Evaluating Distance Education--at the provincial level and the local level. Ten tips for distance learning are given and a selected bibliography lists 10 items. Distance Learning Program Evaluation questionnaires for teachers, students, parents, and principals or coordinators are appended. (ALF)

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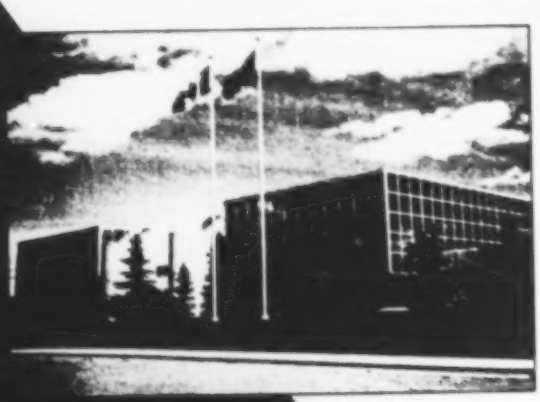
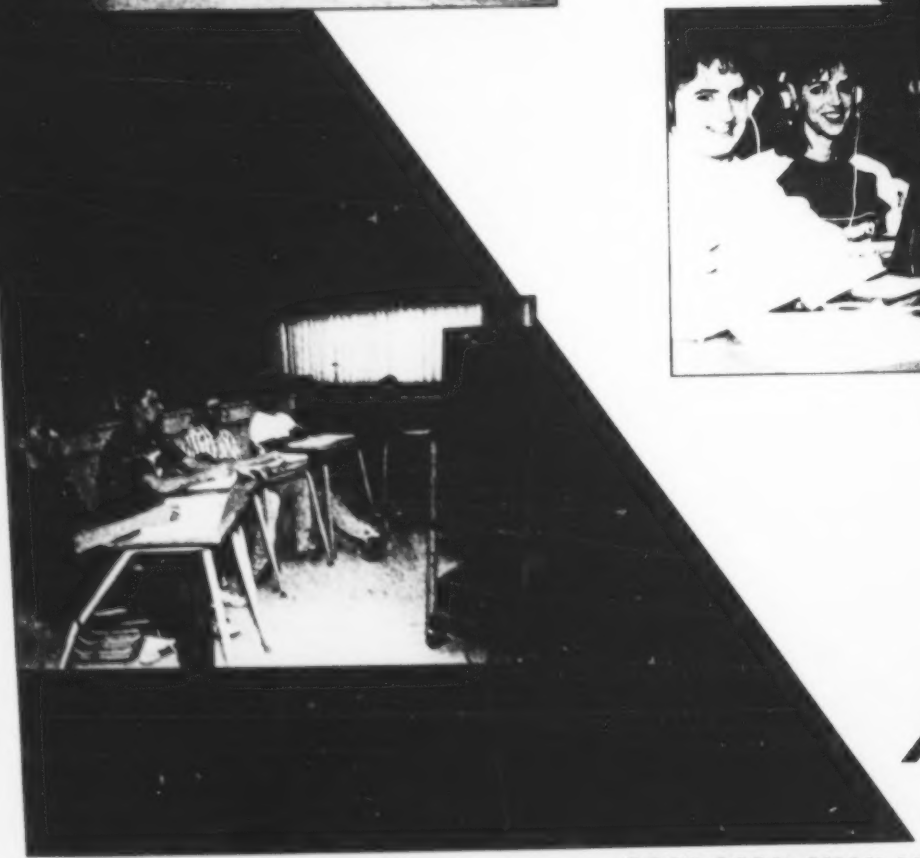
DISTANCE LEARNING HANDBOOK

A resource for schools offering distance learning programs.





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DISTANCE LEARNING HANDBOOK

A resource for schools offering distance learning programs

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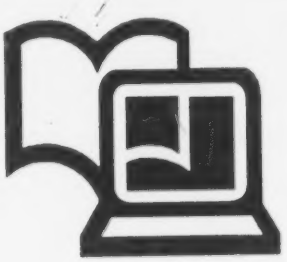

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Assistant Director
Distance Learning Implementation Unit
Alberta Distance Learning Centre
Box 4000
Barrhead, Alberta
T0G 2P0

Telephone (403) 674-5333
Fax (403) 674-6686

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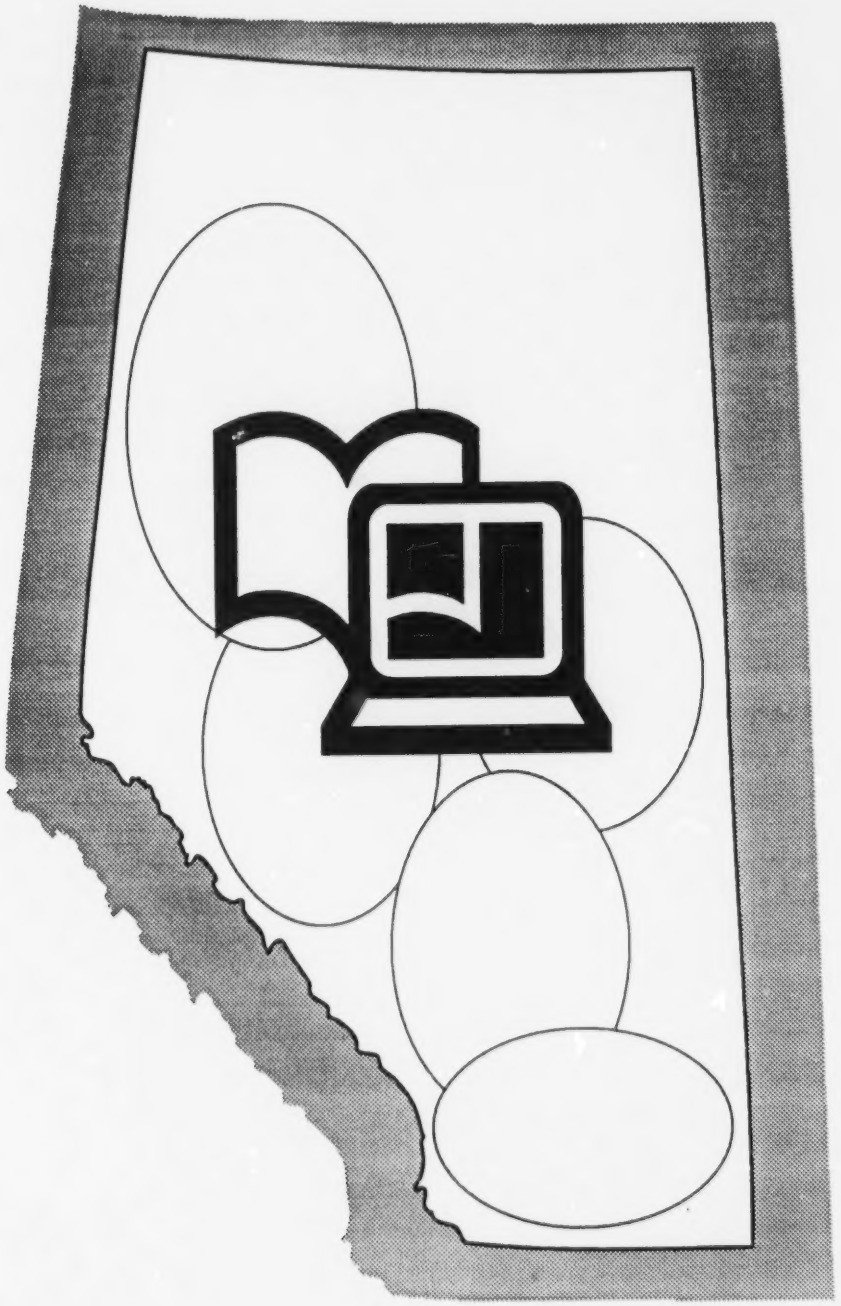


Distance Learning in Alberta

Why and how

Distance Learning is the delivery of educational services (instruction, tutoring, counselling, assessment) via technology.

Alberta is characterized by wide open spaces, long distances, and a sparse rural population. In most of rural Alberta, students are bused to centralized schools. Sometimes these have small high school components. Sometimes these schools are located outside the students' own communities. Sometimes the bus rides are very long.

Maintenance of the local high school, with a full educational program, is essential if equitable educational opportunity for all students is to be achieved.

Using a variety of technological innovations to facilitate learning, Distance Learning brings instructional service or expertise from a location where it is resident, to the student. Consequently, distance learning programs give students the benefit of increased course selection and provide more equitable access.

Students remain in their own local school. They are assisted by a classroom teacher and receive teacher guidance from a subject specialist. The subject specialist may be in the students' school, in another school, at the Alberta Distance Learning Centre, or on a farm many kilometres away.

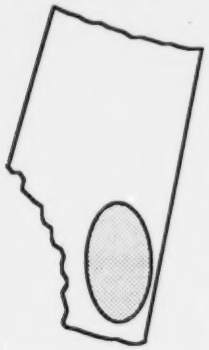
Students have access to information, materials, and resources by mail, telephone, computer, facsimile machine, teleconference convenor, satellite receiver, video and audio cassette players. Telephones, facsimile machines, and computers provide students with quick responses and evaluations of completed assignments.

A distance learning classroom may have as few as two or three courses under way at one time. An in-school distance learning coordinator and off-site distance learning teachers combine to provide students with an opportunity to take courses that otherwise would not be available to them.

Many of the distance learning materials produced in Alberta are used in small rural high schools. The acceptance of distance learning may be measured by the three-fold increase of participating schools in the first three years of the program, and by steady growth in subsequent years. In April 1991, the number of students enrolled in distance learning courses in schools approached 10 000.

A brief history

September, 1987



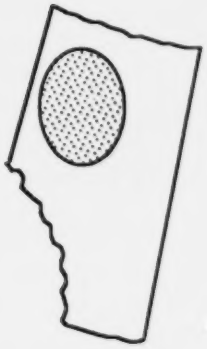
Distance Learning in Small Schools Project

In September 1987, thirteen high schools in ten school systems in southeastern Alberta began offering distance learning in what was called the Distance Learning in Small Schools Project. In the first semester, 66 courses were offered to 347 students. An additional eight courses and 239 students were added in the second semester.

In September 1988, twelve schools were added through Distance Learning Project North in northwestern Alberta. Another fifteen schools were added in the south that fall. Students now taking courses by distance education increased to more than 1100.

In 1989, the Alberta Government established the Distance Education Program Equity Grant to make possible the acquisition of distance learning equipment and staff in small rural high schools throughout Alberta. Early indicators showed that distance learning was cost-effective, and that student results were comparable to those from traditional instruction.

September, 1988



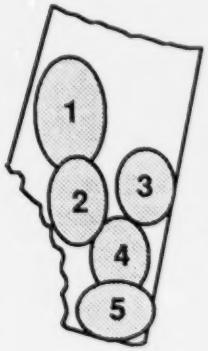
Distance Learning Project North

By September 1989, distance learning was no longer offered on a project basis. It had become part of the way rural high school students receive their education in Alberta. Over 130 schools were participating. They all had fewer than 150 high school students and virtually all were located in rural Alberta.

In the 1990-91 school year, the province-wide acceptance of distance learning was clearly seen. Over 9700 students were enrolled in high school subjects. Included were 80 schools offering mathematics by computer-managed learning.

In the 1990-91 school year, 127 small schools scattered throughout Alberta from the northwest to the southeast were eligible for grants to support the distance learning program. The two schools furthest apart from each other were separated by some 1200 kilometres.

September 1990



Distance Learning Consortia in Alberta

Although the distance learning program is directed at small schools, as the program matures, there has been a trend to form locally managed distance learning consortia. A consortium provides a sharing of resources, both human and financial, to extend the program with economy of scale in distance learning delivery. Membership in these consortia may include larger schools, community colleges, and the Alberta Community Colleges. In 1990-91 there were five major consortia in operation in Alberta: 1. Distance Learning North Consortium, 2. West Central Alberta Distance Education Consortium, 3. Central East Distance Education Consortium, 4. Big Sky Distance Education Consortium, and 5. Distance Learning Options South. Numerous jurisdictions chose to operate independently. Virtually every school jurisdiction, however, has access to a distance learning consortium in its vicinity.

The goals

Successful implementation of the Distance Learning program in Alberta will result in the following goals having been met.

- Enhanced opportunities for learning with more courses and broader choice of subjects
- Better designed learning resources using print and non-print media
- Personalized instruction and continuous progress in multi-grade and multi-program delivery
- Improved on-site learning centres
- Use of communications technology to deliver courses and materials
- Shared educational resources among districts and local or regional consortia
- Partnerships among public and private sector participants to develop and deliver "the best possible education . . . to students in Alberta" regardless of where they live.

The tools of technology

Technology serves to bridge the gap, or to reduce the "distance," between the students and the courses they wish to take in order to have "the best possible education" regardless of where they live in Alberta.

Technology is vital to a successful distance learning program. Traditional correspondence courses by mail have had a student completion rate of approximately 30%. With distance learning , the completion rate is closer to 90%.

Technology contributes to this dramatic increase by putting the student into closer contact with the specialist teacher and by providing a faster turnaround on assignments, usually less than two days, thus maintaining student interest.

Facsimile machines transmit assignments from student to subject specialist and back. Teleconferencing provides live oral instruction in language study and other courses. Satellite dishes and videotape increase the range of television programming. Computer-managed learning provides immediate generation of tests and feedback on answers. Computer-assisted instruction is on the horizon, and computers are already being used for electronic communication. Technologies such as audiographic and video teleconferencing are being explored and incorporated into new course designs.

Most of today's schools are equipped with what is now conventional audiovisual hardware for using traditional educational media. Other services range from electronic mail and subject area forums to student conferencing. Combined with conventional print materials, technology will grow in importance in the delivery of distance learning programs.

Producing the goods

The Alberta Distance Learning Centre, and especially its Distance Learning Implementation Unit, is always ready to assist any school or jurisdiction interested in exploring the use of distance learning for the benefit of its students.

Alberta Education is dedicated to providing all students with equitable access to quality education. When required materials are not commercially available through publishers and other suppliers, they are created. Most distance learning materials are designed and printed at the Alberta Distance Learning Centre. All materials, either acquired or produced, are then supplied to Alberta schools through the Learning Resources Distributing Centre. A full catalogue of all materials, the *Buyers Guide*, is provided to each school in Alberta.

Who takes distance learning courses?

Students all over Alberta are taking courses via distance learning. Courses by correspondence provide additional flexibility in completing one's education. Many adults also enrol in correspondence courses.

Alberta Education Facts and Figures for 1989 provides some interesting statistics which give an idea of the popularity of education at a distance. In 1988-89, there were 30 380 students registered with Alberta Distance Learning Centre in 45 387 courses. Senior high courses accounted for 92.9% of all enrolments. Almost two-thirds of the students (64.4%) were under 19 years of age; and 62.7% were from rural Alberta.

The popularity of distance learning can be seen in the growth from thirteen schools in 1987 to 135 by the end of 1989. Nearly all schools eligible for distance learning grants are participating, as well as several schools who rely on their own resources. In addition, distance learning is now seen as an opportunity for the adult learner to complete the courses needed to finish high school.

A key to success in distance learning is the provision of courses not otherwise available. By combining in-school instruction with teaching from a distance by subject area specialists, the educational program of a small high school is greatly extended. In some cases, in-school instruction is supported by LMS (Learning Management System), a computer delivery system which allows one teacher to deliver several courses, for example, mathematics, in one room, at one time.

In the 1989-90 school year, Alberta schools offered more than 80 different high school courses by distance learning, in addition to traditional correspondence instruction by mail.

For more information

Contact:

Assistant Director,
Distance Learning
Implementation Unit,

Alberta Distance Learning Centre

Box 4000
Barrhead, Alberta
T0G 2P0

Telephone (403) 674-5333
Fax (403) 674-6686

Bringing Education To You

Distance Learning Services

Alberta Distance Learning Centre
(formerly the Alberta Correspondence School)

For almost seventy years, the Alberta Distance Learning Centre (ADLC) has helped Albertans continue their education. Established in 1923, the School enrols students from Grades 1 to 12. A computerized system keeps track of all students and courses, and each student is assigned to a teacher at the school. Approximately 150 permanent staff are employed, including about fifty teachers in elementary, junior high and senior high. Originally headquartered in Edmonton, ADLC moved to a new facility in Barrhead, Alberta, in 1983. In 1991, the name was changed to the Alberta Distance Learning Centre (ADLC) to more accurately reflect the new function and responsibilities of the school.

Alberta Distance Learning Centre.

Of the students enrolled at ADLC, many are adults who use correspondence as a means of completing a high school education. Distance learning in small high schools has increased the educational opportunities for many rural students, but there is still a substantial number who enrol directly with ADLC.

Besides the correspondence program, a major activity at ADLC is the development of print material for the Alberta distance learning program. Lessons are prepared by subject experts and instructional designers. Following design, typesetting and paste-up, materials are printed by the Learning Resources Distributing Centre (LRDC) in a large shop at ADLC. Facilities can handle anything from a small, black-and-white, quick-print job to lengthy manuals, resource books, and color print production. Assembly, binding, and packaging of materials completes the job. Some materials are then stocked to be shipped from ADLC to correspondence students. Others are shipped to the LRDC in Edmonton where they are made available to all Alberta schools and itemized in the *Buyers Guide*.

Learning Resources Distributing Centre

Learning material availability enhances teaching and learning quality.

The availability of educational resources to both students and teachers is a significant and contributing factor to the quality of teacher instruction and student learning. Therefore, the major purpose of the Learning Resources Distributing Centre (LRDC) is to contribute to the quality of education for Alberta and Northwest Territories students through the delivery of a range of cost recoverable quality services that include:

- acquisition of resources that respond to authorized curriculum,
- production, assembly, sale and distribution of learning materials, and
- provision of learning resource information and advisory services.

LRDC motto:

"Reaching students is what we're about."

In addition to the acquisition and distribution/sale out of Edmonton and production and distribution out of Barrhead, the LRDC operates and manages the Alberta College of Art, Lakeland College, Northern Alberta Institute of Technology (NAIT) and the Southern Alberta Institute of Technology (SAIT) bookstores.

The LRDC is committed to high quality services and customer satisfaction by providing timely, accurate and economical learning materials to all customers in a courteous and professional way.

Providing learning resources to Alberta schools is now big business, and the LRDC is the largest supplier of educational materials to Alberta schools. The LRDC also produces and supplies distance education materials directly to schools and Alberta Distance Learning Centre (ADLC) students.

In the fiscal year ending March 31, 1991, the LRDC shipped 1.7 million units worth a total of $26.7 million.

In 1990-91, the LRDC handled over 17 000 different educational products such as textbooks, software, slides, films, compact discs, distance learning modules, tests, workbooks, drafting sets, kits and puppets. Over 43 000 orders and 275 000 order lines were processed for kindergarten to Grade 12 school customers. A total of 1.7 million units of goods were shipped for a value of $26.7 million of which $2.4 million was for Distance and Correspondence Education materials. Virtually everything shipped will contribute to someone's education, as indicated in the LRDC slogan, "Reaching students is what we're about."

Annual Buyers Guide and Supplements list available resources and prices.

The LRDC *Buyers Guide* is supplied to schools annually, with three supplements to inform teachers about the learning resources that are available and their price. The listed materials are generally those adopted by Alberta Education for use at all levels. For more information, contact the LRDC at 12360 - 142 St., Edmonton, Alberta T5L 4X9. Telephone 427-2767 or Fax 422-9750.

Distance Learning on Video

A fifteen minute slide-tape production entitled *"Distance Learning in Alberta"* has been put onto videotape. It has been widely used at in-service and conferences for information sessions. If you're interested in it, send your request and a blank 60-minute VHS videotape to get your own free copy. Send your tape to Distance Learning Implementation Unit, Alberta Distance Learning Centre, Box 4000, Barrhead, Alberta T0G 2P0.

Distance Learning Implementation Unit

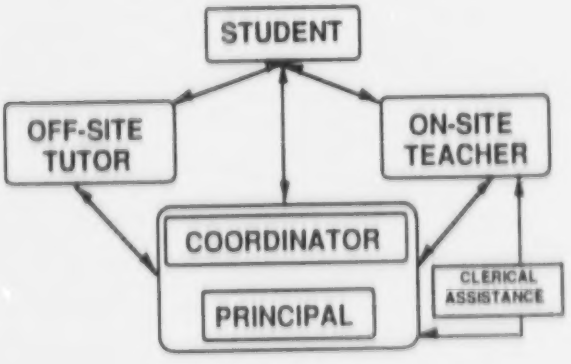
The Distance Learning Implementation Unit plays a central role in the distance learning activities in Alberta and at the Alberta Distance Learning Centre. It is this unit which is responsible for the implementation of the distance learning program for Alberta Education. The Unit has five major functions important to school jurisdictions and networks:

Functions of the Distance Learning Implementation Unit

Consultation
Evaluation
In-service
Research
Communication

- Consulting in all aspects of distance learning to schools, school jurisdictions, established networks and distance learning consortia. This includes assistance with programs, network design, pedagogy, evaluation, budgeting, administration, staffing and policy.
- Evaluating and monitoring of distance learning programs and delivery systems as requested by school jurisdictions and branches of Alberta Education.
- Developing, presenting, and coordinating information and in-service sessions as required for the implementation of distance learning in Alberta.
- Coordinating the research effort at Alberta Education and keeping abreast of developments in distance learning in Alberta, the rest of North America, and other parts of the world.
- Acting as a communication link between Alberta Education and teachers. This facilitates the flow of information in both directions, providing current information to teachers. The benefit to Alberta Education is the first-hand knowledge of programs, processes, problems and successes occurring in the field.

Distance Learning Instructional Model



In-service in Distance Learning

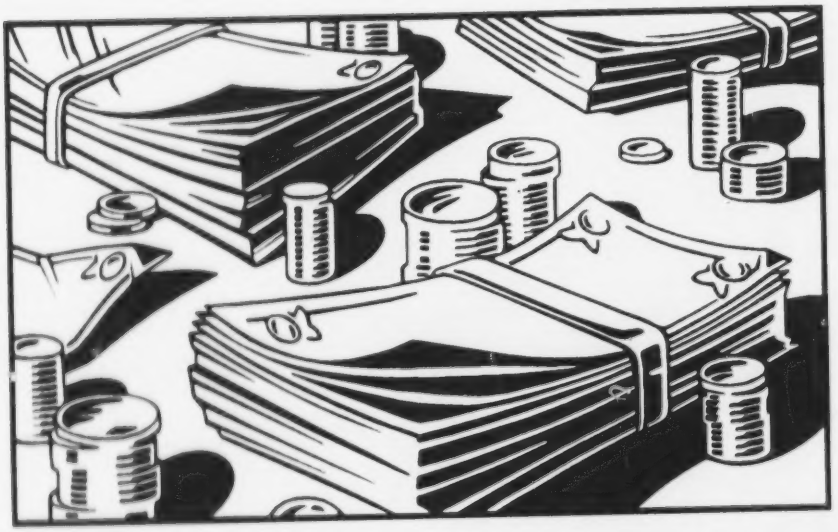
Alberta Education, through the Distance Learning Implementation Unit of the Alberta Distance Learning Centre, coordinates and presents in-service sessions for teachers, principals, superintendents, and the general interested public. The in-service program is flexible, and sessions can be developed to fit the needs of the client group. Workshops can be combined to form a comprehensive in-service program to cover all aspects of distance education. Following is a list of possible sessions.

Educational institutions and other interested organizations may receive guidance and assistance on a variety of distance learning topics from in-service and workshop sessions organized and coordinated by the Distance Learning Implementation Unit of ADLC.

- Adding Visuals to Distance Learning
- Audio Teleconference Workshop
- Classroom Implications of Computer Managed Learning
- Computers in Distance Learning
- Coordinator's Role in Distance Learning
- Distance Learning Technology Workshop
- District Administrative Issues
- Electronic Mail and Computer Conferencing
- Evaluating Distance Learning
- Introduction to Distance Learning
- Computer Managed Learning: Manager's Workshop
- Local Support for Distance Learning
- Student Issues in Distance Learning
- Teacher's Introduction to Computer Managed Learning
- Teacher's Role in Distance Learning
- Teaching at a Distance
- Off-site Teacher's Role In Distance Learning

In-service activities related to distance learning are often held at teachers' conventions, professional development days, and at specialist council conferences of The Alberta Teachers' Association. As well, there are several other educational organizations, comprised mostly of post-secondary educators, which also hold workshops and conventions dealing with distance learning. These include the Alberta Association for Continuing Education, the Alberta Distance Education and Training Association, and the CML Provincial User's Group. Private firms and consultants can also provide in-service sessions and training in the various fields of distance learning.

For additional information on in-service opportunities and sessions, contact the Distance Learning Implementation Unit.



Distance Learning Funding

Eligibility for Grant

In 1989, the Alberta government responded to the need for financial assistance in providing equitable access to courses to students through distance learning by establishing the Distance Learning Program Grant. The purpose of the grant was to provide financial aid to the less able school jurisdictions so that their students would have the same opportunity as the more able jurisdictions in having access to the courses they needed or wanted. This meant arriving at some formula that would be fair and equitable. As might be expected, no formula can do this without some unhappy people; nevertheless, a set of criteria was identified to address this issue. These criteria are reviewed regularly and modified as needed to ensure that we provide the **"best possible education for all Alberta students, regardless of where they live."**

Who qualifies?

All jurisdictions with senior high schools that meet the following criteria are eligible for a Distance Learning Program Grant.

- Fewer than 150 senior high school funded students are enrolled as of September 30.
- Offers at least one course through a distance learning program.
- A jurisdiction's adjusted equalized assessment is less than $325 000 per resident student.
- All courses enrolling more than 15 students for which there is a subject specialist teacher on site may not be counted for credits towards the Distance Learning Grant, unless special approval is obtained from the Distance Learning Implementation Unit.

The grant is an operational one based on the number of distance learning student credits offered, total senior high school enrolment, and the district's tax assessment per student. A maximum number of distance learning credits is set for each size of school to discourage substitution of distance learning for conventional instruction.

For schools with 10 or more high school students and providing at least 150 credits to S.F.P.F. eligible students through distance learning, the maximum recognized operating cost allowance is $36 422 plus $107.85 for each credit in excess of 150.

For schools with fewer than ten high school students, or offering fewer than 150 distance education credits, the operating allowance is $145 per credit.

The funding is a product of the total recognized cost allowance and an equity factor based on the district's per student tax assessment. This equity factor ranges from 0.9 for a jurisdiction with a per student assessment of $45 000, to 0.0 for a jurisdiction with an assessment greater than $325 000 per student. That is, a jurisdiction with an assessment of $325 000 per student is not eligible for the grant.

The Distance Learning Grant will not cover the total cost of providing the program. It is expected that districts wishing to participate will contribute to the cost from local resources, as they do for all other school programs.

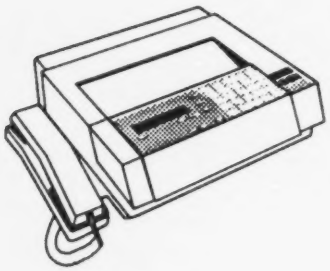
Application for Grant

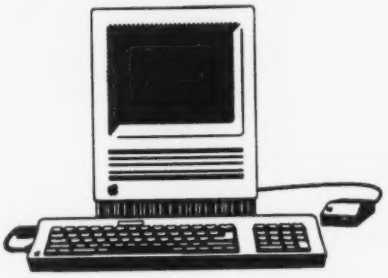
Schools applying for funding to support the distance learning program are required to complete the grant application forms. These can be found in the current grants manual available from Alberta Education. The forms are to be submitted to the Grants and Administration Unit of Alberta Education for approval. Regional Offices of Education and the Distance Learning Implementation Unit may also be contacted for information and clarification concerning the application.

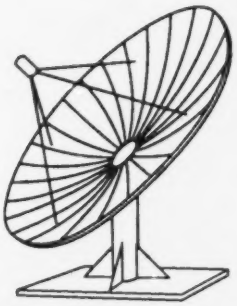
When approval for the grant has been given by Alberta Education, funding will be made available to the local jurisdiction. The portion for first semester and full year courses will be released soon after the application is processed. The second semester portion will be released near the end of the school year, after some form of program monitoring has been done, or confirmation of program delivery has occurred.

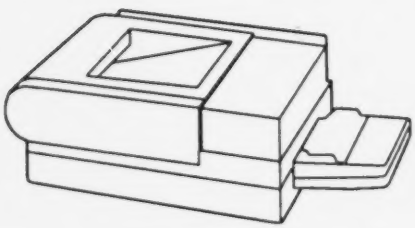
Distance Learning

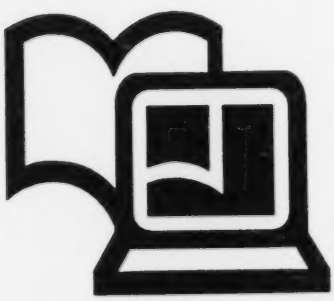
Models











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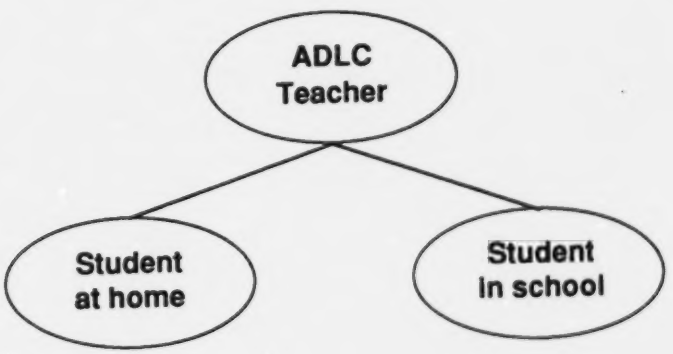
Distance Learning Models

Several models of distance learning are being used by school jurisdictions to provide "the best possible education to all Alberta students." Each model has its strengths and weaknesses, and although no perfect model exists for all schools, each works well for a specific jurisdiction's particular needs. The best advice is to study the models described here, and to use the components that meet local needs best, and to create one's own model if necessary.

Correspondence School-Based Model

For many years, this was the only model of distance learning delivery in Alberta. It was, and still is, referred to as correspondence school course delivery. Although it is still popular, many jurisdictions are looking at other ways to provide distance learning. In this model, the students are registered with, and receive all their instruction from, the Alberta Distance Learning Centre (ADLC). All assignments are sent to ADLC for correction and evaluation. During the course, students may write or telephone the teachers at ADLC for assistance with their problems; however, telephone tutoring is minimal because of the large number of students registered, and the limited number of teachers available on-site. At the end of the course, students are expected to write a final test under the supervision of the local school. The test is evaluated by ADLC, and a final mark is awarded.

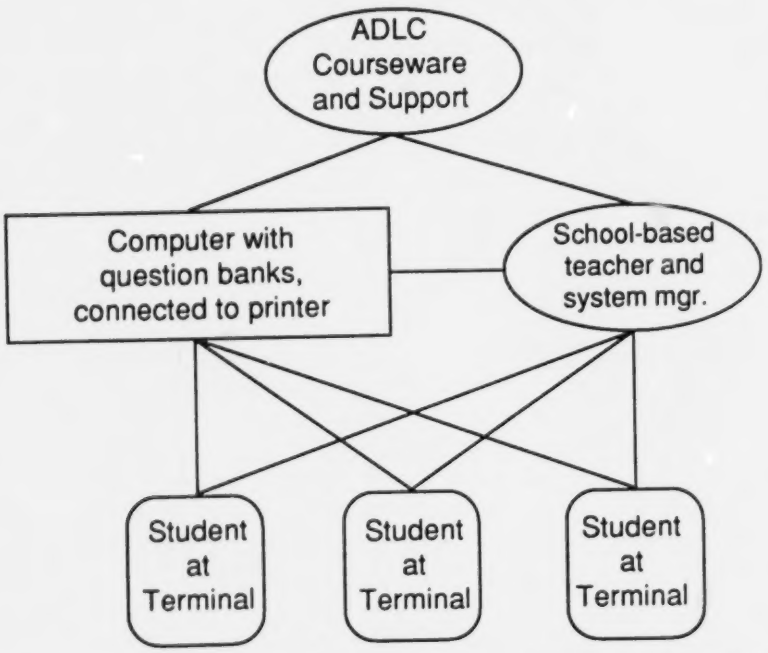
A graphic depiction of the relationship between teacher and students appears below:



Experience has shown that the best results occur when the local school takes an active role in the student's correspondence work. Where an on-site teacher is available for remedial instruction, and where local records are kept of student progress, lesson submission and grades, students tend to complete on time and get better results. When the students are scheduled into a classroom and the course is treated the same as traditional courses, the completion rate once again increases. Students who are not provided this level of support have a higher chance of encountering barriers, losing interest and not completing the course.

Computer-Managed Learning Model

In this model, a number of students in the same subject, but at different grade or achievement levels, are placed together under the tutelage of a teacher who is the subject matter specialist. An example of such a situation may be a class composed of students taking Mathematics 13, Mathematics 23, and Mathematics 33. Graphically, the student-teacher relationship would look like this:



Clearly, the task of delivering content in this situation is difficult; therefore, additional support is required. Support is available in the course materials from ADLC for the content, evaluation, and the use of a computer system for student tracking. The on-site teacher assists students individually, or in a group when common problems occur. Students progress at their own rates in reaching the course objectives.

Evaluation is aided by computer-generated tests and quizzes. Other assignments are provided in the course print materials available from the Learning Resources Distributing Centre.

Although computer-managed course materials were originally developed only for senior high school mathematics, subsequent development is ongoing for materials and test item banks for other courses that lend themselves to such a delivery mode.

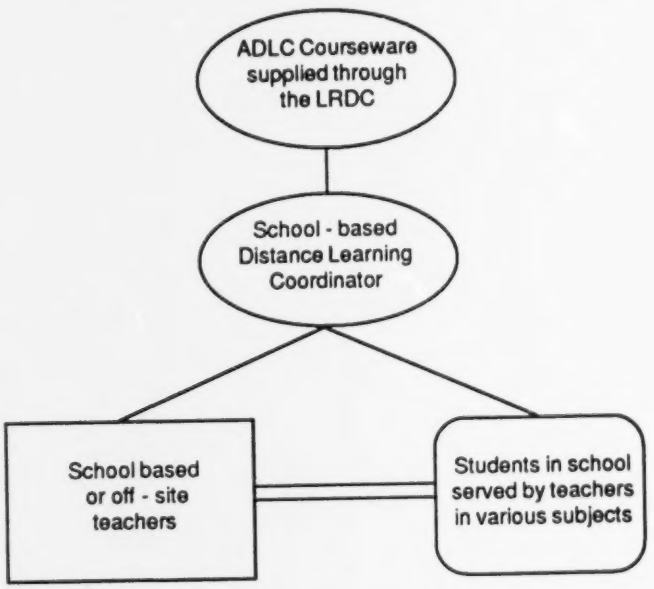
Initial efforts made the computer-managed course materials available for use in the MicroVAX environment, but development work is also being done on test banks for the Macintosh environment.

Multi-subject Model

In this model, students enrolled in a variety of distance learning courses and grouped together for convenience are supervised by an on-site teacher. They work on their course materials, getting assistance as needed from the supervising teacher or some other teacher in the school identified for this purpose. Students submit their lessons for correction and evaluation to an off-site teacher. The distance learning room in which they are working may contain the various electronic equipment such as a facsimile machine, telephone, teleconference convenor, computer, VCR, and other hardware necessary for students to work on their lessons and to transmit them to the off-site teacher. Graphically, it would look like this:

In this model the teacher may work from home or a school providing instructional services to students in one or more schools

A school-based teacher assists in the clarification of instruction, tutoring, and use of equipment. Schools often find it appropriate to have a teacher aide or office support staff do routine tasks such as sending lessons and distributing videotapes.


ADLC Courseware supplied through the LRDC
School - based Distance Learning Coordinator
School based or off - site teachers
Students in school served by teachers in various subjects

The off-site teacher presenting the course is responsible for the instruction and evaluation of the students. This teacher may work from a school or from home, providing instructional services to students in one or more schools. Instructional materials may be any resources approved by Alberta Education or developed by the teacher. These could include textbooks, ADLC packages, videotapes from ACCESS, films, and locally produced materials.

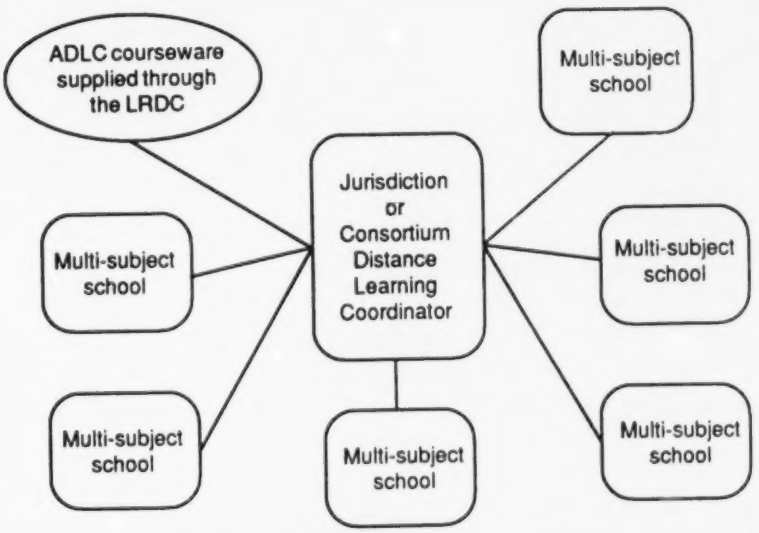
For a successful program, each school should have a coordinator responsible for distance learning. At the beginning of each term, there is a need to obtain the materials, arrange for the off-site teaching, establish a record keeping system of student progress, determine a reporting scheme to the students and parents, and generally act as that school's contact for distance education. Although the principal often assumes this role, it may be necessary to assign this to another staff member because of the time needed to perform this task.

Multi-school Model

The most significant difference between the multi-school model and the multi-subject model is the organizational structure which must be in place to operate it. From an administrative perspective, the multi-school model is a network of many single-school, multi-subject models. The schools work together to develop the structure needed to provide appropriate distance learning programs.

At the school level all students' needs are the same:

Scheduling,
Classroom space,
Supervision,
Equipment,
Course materials,
Instruction.



The network can involve schools from one jurisdiction or several. When more than one jurisdiction is involved, a consortium is usually formed to deliver distance education. As the number of schools and jurisdictions increases, the consortium coordinator needs more time to dedicate to working with the administrators and to developing communication plans. The means of creating this structure is left to the jurisdiction administration. A formal consortium agreement and operating guidelines are developed and approved by the jurisdiction's elected officials.

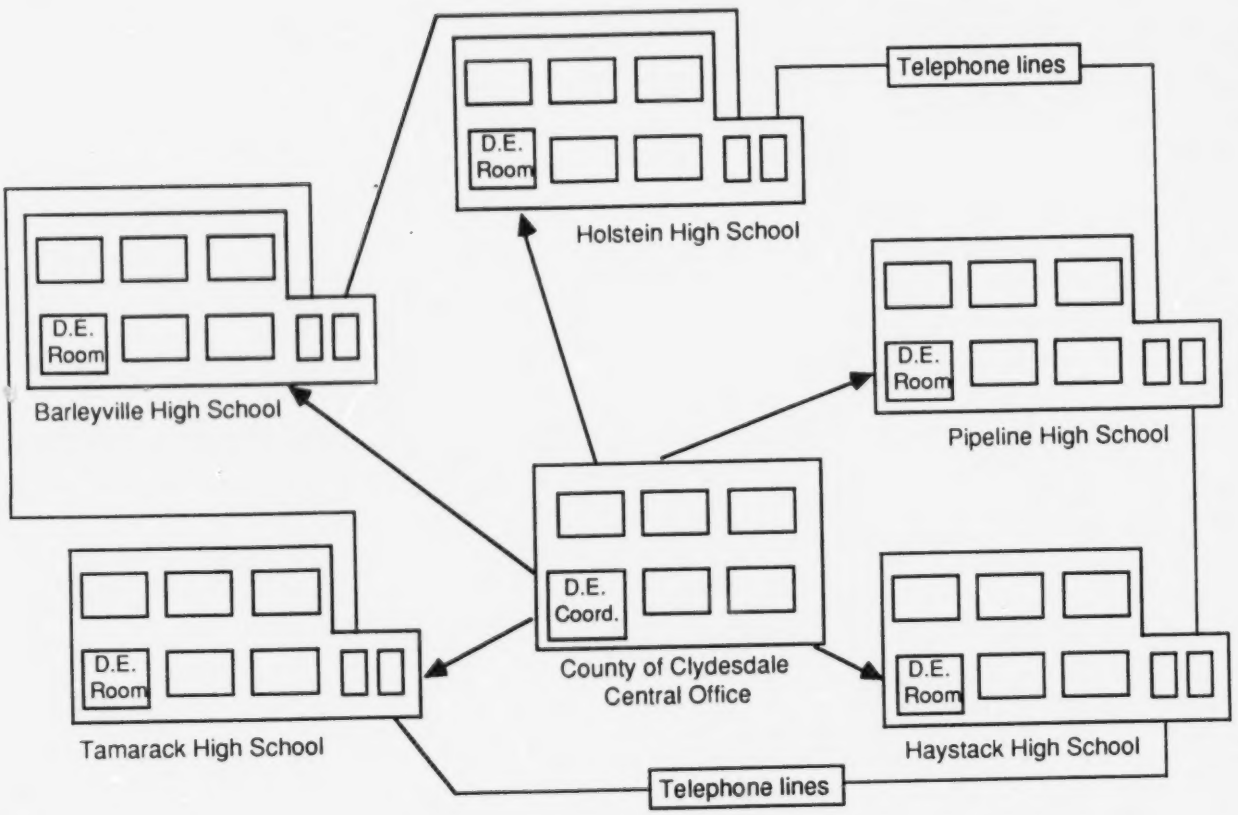
Connected by phone, fax, computer and teleconference with students, the off-site teachers can serve an area covering thousands of square kilometres. Students need not be confined by the geographic boundaries of a school division or county.

Successful operations have identified the need for a school coordinator in each school involved in such a model, as well as a jurisdiction coordinator and a consortium coordinator. These contact persons are essential to ensure a smooth operation and effective communication among all participants. Each school often has teachers for the students to approach for immediate assistance with their lessons, as well as a supervising teacher in the distance learning classroom. This can be the school distance learning coordinator, the distance learning room supervisor, or other teachers specifically assigned these duties.

If a consortium is involved with the computer-managed mode of delivery, there may be a need for a consortium system manager as well as a system manager at each school.

Sample Jurisdiction Distance Learning Network

In the following example, one school jurisdiction has set up a network within its own boundaries. Five schools in this school jurisdiction are served by a central office distance learning coordinator. Each school has a distance learning facility and a designated school distance learning teacher. Instruction may be provided by on-site teachers or by off-site teachers. The schools are linked electronically and by personal contact with one another and to the jurisdiction coordinator. Course materials from ADLC complement the program.



All schools are linked to each other and to the Central Office by telephone, facsimile machine, and computer. In addition, personal contact among them and between students, teachers, and distance learning coordinator is maintained.

In any one school there may be a variety of delivery systems operating at one time. Instructional service among and between schools may be shared as needed via computer-managed delivery, teleconferencing, satellite, videotape, computer conferencing, and by the traditional correspondence course material by mail.

Summary

Regardless of the model or variation used, three ingredients are essential to a successful distance learning program: *attitude*, *resources*, and *preparation*.

The most significant ingredient is *attitude*. If the local school personnel have a positive attitude and are committed to the program and take an interest in the students' success, the students themselves will take on a positive outlook and make it work.

The second requirement is having the *resources* to complete the course activities. The equipment required depends on the courses being offered and the consortium system being in place. Most consortia use facsimile machines, teleconference convenors, and electronic mail conference systems. Additional hardware enhances this operation.

Third, as in any approach to education, adequate *preparation* in the planning, organization, and coordination is vital to implementing a program that works.

Resources also include having the instructional materials required to deliver the course. Ensuring that necessary materials are ordered from the Learning Resources Distributing Centre and in place before a course is offered does a great deal to ensure success and avoid delays in student progress.

Each school offering distance learning should have a staff teacher responsible for overseeing the program. The remaining staff, the students, and the parents will soon recognize that the program is an integral part of the whole school offering. Even adults will come seeking an opportunity to finish a high school diploma by distance learning.

As the schools become more involved with other schools and jurisdictions, appropriate coordinators at these levels should also be established. Support from senior administration is essential to recognize that distance learning is a significant part of every educational system.

Perhaps the most difficult transition to make is the recognition by teachers, students, administrators, and parents that their roles must change in a distance learning environment. Students must take a greater responsibility for their own education; teachers must become managers of the students' learning processes, and not simple purveyors of knowledge; parents must become accustomed to different modes of instruction being available in their schools; and administrators must give much support to this program for it to be successful.

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Authority and Responsibility

The Individual School

The school administration and teaching staff are responsible for the education of the student, including distance learning courses if they are part of the students' programs. The school is the legal body which ensures that the course material has been covered and awards marks and credits as defined in The School Act.

The school is the primary contact for students. It is at the root of all educational activities students will encounter. For that reason, the school and its staff are of the utmost importance in any successful distance learning program.

The school is responsible for providing instruction, remedial instruction, suitable facilities, course materials, and such other resources as are required to run the program. It is also the school's responsibility to maintain contact with the student's parents and to produce progress reports on a regular basis.

Members of the teaching staff will most likely be delegated the roles of school coordinator, supervising teachers, tutors, markers and so on. Teachers should be made available for the students who need help with a subject. Often a teacher aide can be used to perform the routine tasks such as faxing and photocopying, leaving the assigned teacher free to concentrate on assisting the students with their learning.

The School Jurisdiction

The jurisdiction's mandate is to look after the educational needs of the students within its jurisdiction. The structure to support distance learning is different from that of the regular school, despite the mandate being the same as traditional education. The school board is responsible for providing the means by which its students have access to the same level of educational opportunity as any other student in the province. With this responsibility comes the need to provide the staff, space, and equipment required to offer an educational program which allows students access to the courses they need.

As important as the school and its teachers are to education, without the support of the jurisdiction in arranging for the necessary fiscal and human resources, the education program would fail completely.

In many cases a jurisdiction will join with other jurisdictions to create a consortium. This allows the distance learning operation to gain the benefits associated with economy of scale. It is important to note that a consortium has no power or authority other than that which is given to it by the school jurisdictions. The School Act does not recognize the consortium as a legal body with authority or responsibilities. All activities must be carried out by school jurisdictions.

The Education Consortium

Although not a legal body responsible for the education of students, a consortium also has an important role to play in addressing the needs of students, especially in partnering with school jurisdictions, colleges and other interested groups in arranging for the necessary resources to deliver equitable educational opportunities to students in Alberta.

At the consortium level, the jurisdictions are responsible for establishing working arrangements among themselves. This can be in the form of formal legal contracts or other partnership agreements acceptable to the participants. Responsibilities for the governance, financial management, and day-to-day operation of the consortium should be clearly identified in the agreement.

These agreements cover such areas as the hiring of consortium coordinators and off-site teachers, determining acceptable teacher workloads and membership fees, responsibilities and liabilities, just to name a few. Sample consortium agreements are available for review from the Distance Learning Implementation Unit of the Alberta Distance Learning Centre.

Currently in Alberta there are five major consortia offering distance learning programs to its members. They are listed on page 2 of this Handbook. In addition, the jurisdictions which offer a program in the French language have recently formed a consortium to help deliver courses in French as a language of instruction.

Persons wishing to obtain more information on forming educational consortia should contact the Distance Learning Implementation Unit.

Alberta Education

The provincial government, through The School Act, has full authority over education in Alberta, including distance learning. Various branches have been given specific responsibilities. Following is a brief description of the roles some branches have.

The provincial government has indicated that distance learning is important on the educational scene. Since 1987, funding has supported this initiative, and continues to be made available to eligible jurisdictions in need of financial assistance to provide equitable educational opportunity to all students in the province.

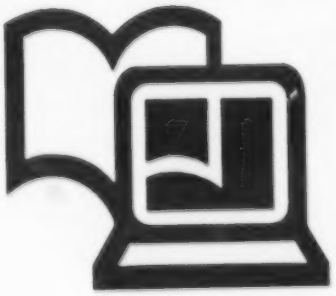
The Alberta Distance Learning Centre has been given the responsibility of developing course materials suitable for distance learning. The Distance Learning Implementation Unit of the Alberta Distance Learning Centre is responsible for consulting services, in-service, liaison with the field, and program evaluations when requested.

The five Regional Offices of Education have the most direct contact with the jurisdictions. They provide consulting services when appropriate, carry out program evaluations, and perform monitoring functions to ensure an equitable and proper program is offered.

The Grants Administration Branch is responsible for the allocation and payment of grant funds for distance education.

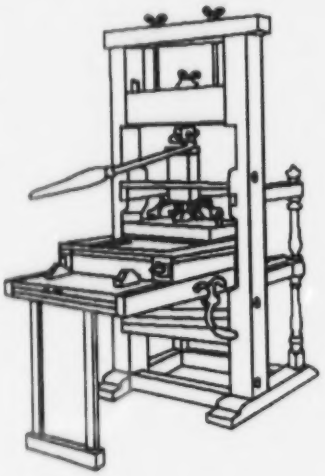
Distance Learning

Technology



Distance Learning Technology

Print



Although electronic technology is widely used in distance learning, most courses are print based. Resources produced by Alberta Education and printed at the Alberta Distance Learning Centre comprise the bulk of materials used by students. Whether instruction is by traditional correspondence via mail, or by new methods such as facsimile transmission, print remains basic to distance learning instruction.

Sending and receiving lessons by fax from a school to an off-site distance learning teacher has improved delivery times for marking of lessons. This combination of print and electronic technology has reduced turnaround time from about three weeks by mail to one or two days by facsimile.

As the distance learning program expands to include more print materials, several improvements are being incorporated into print material. These include:

- Better layout and design of instructional materials, incorporating text and graphic elements.
- Re-formatting of answer sheets to reduce the amount of materials to be sent by mail or fax to distance teachers. This reduces the time and cost of telephone line charges and the amount of paper used in transmission.
- Production of new materials especially for distance learning delivery.

Like any other technology, print does not replace a good teacher, but is most effective when used by the teacher in a manner that works with students. In distance learning, many students enrol who are not academically inclined and may find some difficulty in the reading and comprehension of materials. Likewise, such students may not yet be accustomed to the responsibility they need to assume for their own success in a distance learning program. Use of print materials by students can still be guided by teachers for maximum results.

Computer-Managed Learning

An Overview

Computer-Managed Learning, usually referred to as CML, is a system used to track students through a series of predefined activities. In distance learning in Alberta, CML is used mainly to assist with the instruction of nine high school mathematics courses. For each course, a question bank with thousands of questions has been created. Question banks for other courses are being developed to expand the use of CML systems.

The system of CML used in Alberta distance learning schools is the LMS (Learning Management System) software, the name used by the marketing company. The hardware used in the computer-managed learning installations is based on a Digital Equipment Corporation product called the MicroVAX computer.

Students are required to spend only a few minutes at a time on the terminal to enter answers or to generate assignments.

Student Interaction With The System

The system has many features. It guides the student sequentially through a set of predefined activities which make up the course. The student first completes the learning activities in the print material, including practice exercises. These practice exercises are keyed so the student can get an indication of whether the concept being studied has been mastered before asking for the next activity.

The next step is to log on to the computer and ask for a computer-generated activity. This may be an assignment, a unit review, a unit test, a midterm test or a final examination.

The computer then generates the assignment which the student completes away from the computer terminal. If it is an unsupervised assignment, it will be printed automatically. If it is a supervised activity, the teacher will have to release the assignment before it is printed. When the printed assignment is completed, the teacher marks any teacher-marked questions and the student returns to the terminal to enter the answers and the codes for the teacher-marked questions.

The computer marks the remaining questions and records the score, the questions used, the questions answered correctly, the questions answered incorrectly, and prints out an assignment report. This report indicates the percentage achieved on the test, the questions which were answered incorrectly, the student's answers, and the correct answers. If the student achieves the pre-defined level of achievement, the next step is to proceed to the next assignment. If the minimum level has not been reached, the student is expected to review the course material and then redo the assignment before proceeding to the next activity.

When the student feels ready, the next assignment is drawn, and the cycle is repeated until the course is completed. If the program is not enhanced with a variety of activities including teacher-presented lessons and use of non-print learning resources, it can soon become very tedious and may cause the student's motivation to diminish.

Some students will take more time to complete the course and may try to achieve marks higher than they would achieve in a regular classroom. This situation can create problems if the course is expected to be completed within a rigid time schedule. Research indicates that on average, mastery learning takes one-sixth longer than conventional classroom learning. Thus a course which is designed to be delivered in the classroom in 125 hours could take 145. The number of students who need additional time to complete the course will vary, but this must be planned for and expected.

Teacher Interaction With the System

The teacher's interaction can be classified as one of three functions: *clerical, report generation, and system management*. The **clerical** function includes such things as registering students on the system, allowing them access to parts of the system, finding passwords, changing marks and performing other tasks.

The **report generation** function includes such things as report card grades, student histories and an item analysis of questions and objectives. The system can be used to identify students according to specific criteria, for example those students experiencing difficulty mastering a specific objective. This allows the system to identify students for diagnostic purposes.

System management functions include such things as changes to predefined course sequences and course decisions. An example would be the changing of the minimum mark required before a student may move on to the next assignment.

In-service Training and Support

Initial and ongoing training to use the MicroVAX computer and LMS software is provided by staff from the Alberta Distance Learning Centre. In-service sessions and workshops are designed to give teachers hands-on experience in operation.

Arrangements can be made to have the training sessions at the times convenient for the teachers.

Although training sessions are usually scheduled for late August in preparation for the coming school year, arrangements can be made to have the sessions at the times convenient for the teachers. Follow-up sessions are scheduled throughout the year, and may be held as requested by jurisdictions. Telephone support and on-line computer service is available throughout the year from staff at the Alberta Distance Learning Centre.

Management Considerations

The philosophy of the program at the school level must be congruent with day-to-day classroom management. The intent of the LMS program must be clear to all involved with it. It can be used to allow students to complete the course in a time different from that of the traditional time period. If this is the intent, then that philosophy must be made clear at the beginning so it can be accommodated.

The system can also be used to have students complete the course on a schedule which is coordinated with the traditional deadlines in education, e.g. diploma examination schedules. Some students may take more than one semester to complete a course, but may then have to wait weeks or months to write the diploma examination. Consideration should be given to the concept of a progress schedule which coincides with external guidelines.

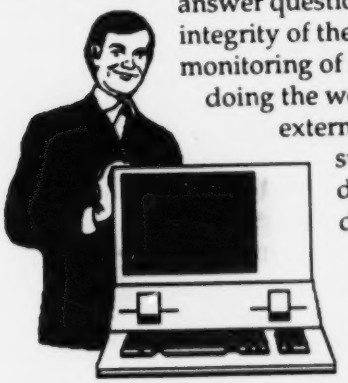
The LMS system is rich in report generating features that can be used for diagnostic purposes; however, many teachers are not yet using this power to its maximum potential. The option exists to have the computer identify students who have not mastered a certain objective, and to prepare a lesson specifically geared to their needs.

Learning Resources

The use of print-based learning resources varies with a teacher's personal preference for them. The greatest variation occurs in the use of the student assignment booklets which contain additional questions. Some teachers ask that students complete these booklets before they draw a computer-generated assignment; others may not feel that the extra repetition is required.

Testing

The testing system in LMS does not eliminate marking. It eliminates only the teacher's marking of multiple choice, true/false and short answer questions. Care must be taken to maintain the integrity of the testing system, however. Close monitoring of students is needed to ensure that they are doing the work and that they are not relying on external assistance while completing supervised assignments. This may be done through a combination of classroom design and supervision strategies.



The issue of the student's reviewing of the previous material should also be considered. Some teachers prefer to design and present their own review materials. Other teachers prefer to have review questions placed in the mandatory sequence of assignments that the student must complete, making the review somewhat ongoing and up to the student.

Timetabling

There is a range of preferences for scheduling the use of the distance education room. Some teachers prefer a portion of the classes to be formally scheduled, with individual student access at specified times of the day. Others prefer to have all classes formally scheduled.

The decision on the room's use must take into consideration how computer-managed learning is viewed in the school, and whether it is considered an enhancement to the regular classroom program or whether it is part of an individualized program.

A general consideration is that to be effective, the computer-managed learning hardware should be readily accessible when needed to optimize the flexibility that a distance learning program can offer.

Teacher Assistance

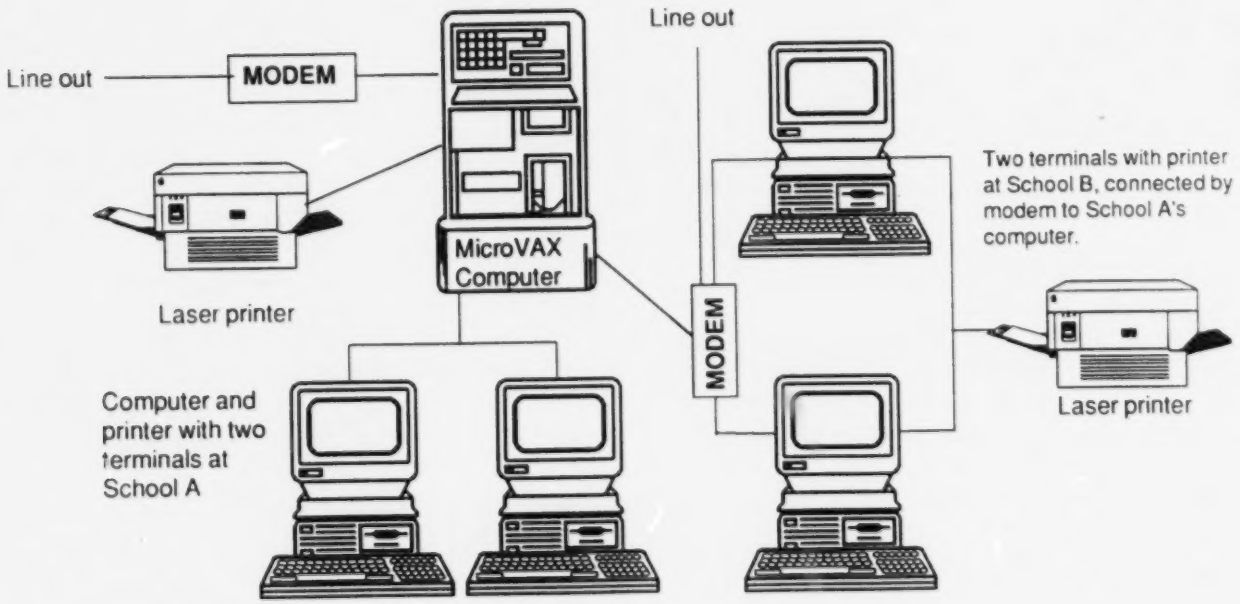
When the LMS courses have heavy enrolments, or when the number of courses offered warrant it, teacher aides may be used to perform the clerical duties and to generate the various computer reports for the teacher. An aide may also enter students' answers into the computer for evaluation, but this takes away some of the immediacy of the feedback which contributes to motivation. It is more effective to have the aide draw the tests and have them ready for the students. Then the student can enter the results and gain the benefit of immediate feedback.

Classroom Arrangement

The arrangement of desks and tables in the classroom will depend on the number of students accessing each of the active courses in the classroom. Equipment should be placed in strategic locations depending on such things as traffic flow, location of the teacher's desk and any writing boards. A designated area can be set aside in which students can write the supervised tests.

Any additional wiring required to place the equipment in the proper location should be done before the room is set up and the CML system is installed. It is reasonable for students and teachers to tolerate inconvenience for a short period of time, but adequate wiring is essential from the outset.

The computer equipment and peripherals should have their own dedicated circuit, protected with voltage surge suppression devices. In addition, a separate telephone line for the equipment is recommended. This permits the computer to be accessed remotely by modem from support staff at the Alberta Distance Learning Centre for trouble shooting and servicing.



The above diagram shows a typical computer-managed learning installation. A school may have a complete self-contained set-up as shown at the left for School A, consisting of computer, terminals, printer, and a modem. The modem may be used for telecommunications and link-up with the Alberta Distance Learning Centre. A modem also allows the computer to serve terminals in a neighbouring school, where there is a printer for local use, but where an additional computer is not required.

Cooperative Learning

The development of informal study groups by students for mutual assistance will invariably occur. Teachers have noted that these groups help to keep students on schedule, and often make it simple for the teacher to provide assistance. Group members tend to work at the same pace, forming a natural focus group for instruction on common difficulties.

Teachers have also noted that in some groups the majority of discussion is not task-oriented. The fact is, some students work better in groups than others. Study groups and some individual study may be the answer. Teachers with experience in LMS programs tend to favour bringing students in the same course together for new topics and to review lesson material.

Student Motivation

Self-motivated students do not have a problem with computer-managed learning. They manage to keep on schedule or ahead of it. Students who experience the most difficulty are the unmotivated students with a dislike for reading. Such students tend to have problems in a print-oriented, learner-controlled environment.

The repetitious nature of the course modules tends to exacerbate the problem. A possible solution for a class with a large number of students who lack motivation may be to organize a more formal teaching scheme, and to allow the remainder of the students to continue more on their own. The important thing to note is that all classes will have a different balance. Some will have more students who thrive on learner control, while others will have more students in need of the regimented organization of traditional face-to-face teaching.

Reporting and Monitoring

Teachers have found the reporting function to be helpful in the management of a student's progress. Most teachers who use the system generate reports on a monthly basis to show the students their progress. This practice should be encouraged. In a self-paced program it is important that students and parents receive feedback on marks and schedule. These reports should include information on marks, assignments completed to date, assignments yet to be completed, and course completion date.

Teleconferencing

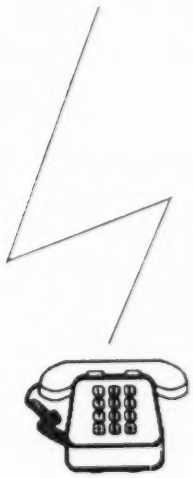
In high school, teaching by teleconference has been used for over five years in some locations in Alberta. At the post-secondary level in Alberta, teleconferencing has been used much longer and is often a means of delivery for college and university courses from an institution to remote sites.

Some teaching strategies work much better in the teleconference mode than others. Some which have been used successfully include:

- Language instruction, e.g. French and German
- Seminars and tutorials
- Debates
- Panel discussions
- Role playing
- Case studies
- Brain storming

There are some strategies which are not suited to this medium. An example would be the lecture. It is difficult for a lecturer to hold the listener long enough to present more than a few minutes of material. This means the presenter must use an alternative delivery mechanism, perhaps an article sent out ahead of time and a discussion of the key points, or directed questions to students informed by previous arrangements.

A key to successful teleconferencing is the involvement of all participants as speakers, not just as listeners.



It takes practice to get comfortable with this type of delivery medium. The speaker is not provided with facial clues, gestures and other feedback normally associated with voice delivery. The instructor should try to make the session as spontaneous as possible. Any scripting must be done to make the session sound as if it is spoken, not read. This means a change in writing style, as well as modifying the characteristics of the voice.

The major challenge in designing the teleconferencing lesson is to make it interactive and motivating enough to overcome the shortcomings of the audio-only medium. The conference must be supported with print materials including an outline (with time lines indicated), learning objectives, resource and background materials.

There is a possibility that teleconferencing may be used to replace more appropriate methods. For example, sometimes information can be delivered better by audio tape, disk or print than by teleconference. Traditionally, the lecture has been used for instruction and the temptation is to lecture by teleconference. This is not an appropriate use of the medium. Role playing in a second language, for example, is an appropriate use.

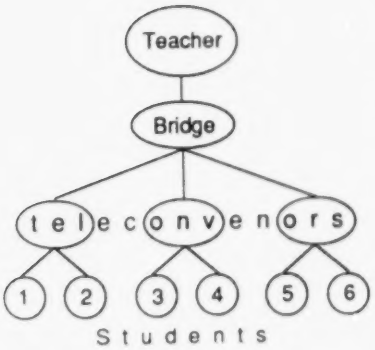
The teleconference is especially suited for simultaneous participation between a teacher and a student, or group of students, and among the students themselves in several different locations. A teleconference is similar to a rural "party line" in which more than two people can participate in a conversation at the same time. For teleconferencing to occur in schools, a number of components are required.

Properly used, teleconferencing can contribute to personalization and effectiveness of distance delivery.

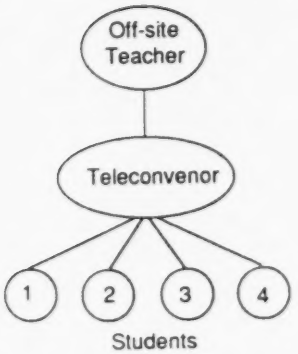
In a simple situation, a teleconference may involve one teacher from a distant site discussing a subject with several students at once in the same school. This requires a telephone line connection from the school to the teacher, and some special equipment. The teacher at one end of the line will need only a telephone. A group of students clustered around a table will require a teleconvenor system.

The teleconvenor system typically includes a receiver unit connected to several microphones. Each student may hear all conversations through a headset or a speaker. To participate in the conference, the student presses a button on the microphone to speak.

A teleconference can also provide for participation by students in several schools at once. This requires the connection of telephone lines through a bridge at a central location which connects all students and the teacher so that each can hear and speak to the others.



The diagram in the left margin, represents how one teacher can connect through a teleconferencing bridge and teleconvenors in three schools. The six students on the system are all part of the same teleconference and can speak to one another or the teacher through these facilities.



The diagram above-left depicts an off-site distance learning teacher communicating through a telephone line and a teleconvenor to four students in the same school. The picture above-right shows this type of situation in use. Each student has a headset for listening and an individual microphone for speaking to the teacher.

Six Keys to Successful Teleconferences

1. **Preparation**

   The instructor must have materials like outlines, readings and video tapes distributed and viewed by class time.

2. **Personalization**

   To develop rapport with the students, the instructor must let personality show through. This can be done in a number of ways. The old stand-by is a photo and a letter of introduction. A video tape of the instructor will help the student match a face with the voice at the end of the line. A personal phone call also lets the teacher develop a closer relationship with the student.

3. **Participation**

   Interactivity must be designed into the session. Teleconferencing alone will not ensure it. Students should be encouraged to voice comments and questions as active participants.

4. **Presentation**

   Advance information is effective in providing students with an overview of the teleconference session. During the session, activities must change several times, and regular feedback must be sought in terms of suitability of the material. No one speaker should monopolize air time. The participants must be involved, and should be encouraged to speak directly to each other, not just to the instructor. The teacher should repeat important points for emphasis and clarity. Information should be summarized at the end of the presentation.

5. **Feedback**

   The instructor should inquire often about the reception, the suitability of the information, and the pacing. Feedback can be gathered with postcard questionnaires and spot group quizzes.

6. **Contingency plan**

   To prevent undue anxiety and to insure against disasters, a contingency plan must provide for the following:

   - a preconference contact number for the instructor,
   - an emergency bridge number, and
   - a tape of the session for the record and future review.

Facsimile Machine (FAX)

The major advantage of the fax machine is instant delivery of printed material of virtually any format.

The facsimile machine has had a major impact on distance learning. This technology does not provide a new format for education, as other technologies do, but rather improves on an existing one. The major advantage of the fax machine is instant delivery of printed material of virtually any format. It can be a hand-written message, a typed memo or a diagram. Most machines can send and receive at several levels of resolution. The standard level is for printed text, and the finer levels are for graphics. Delayed transmission, or transmission from memory, is encouraged so that text can be sent after peak hours when phone rates are reduced. The use of the fax means lesson turnaround time can be a matter of hours, not weeks, which is average for mail-based distance education. This rapid turnaround time is critical for maintaining student motivation and reinforcing learning.

There are a many fax machines on the market, with a variety of features on them. Some of those features are described below.

Memory

Each Alberta Distance Learning Centre lesson has a number of pages which might be sent. If night transmission is to be used (for the reduced line rates), the memory of the machine needs to hold the work completed by a school's distance learning students in one day.

As Alberta Distance Learning Centre courses are reformatted for electronic delivery, fewer pages per lesson will need to be transmitted. (Some teachers return to students only those pages containing comments or errors, thereby reducing the return transmission cost and paper consumption.)

The memory of the fax machine is much like that of the computer; the more memory, the greater the storage capacity. The fax memory is used to receive documents for printout later, or to store text for later transmission.

The memory capacity of larger fax machines can be much higher than that of lesser machines. An external hard disk can be added to some fax machines, thereby increasing their memory further. When transmissions are not long distance, or the fax use is light, memory size is not as crucial.

Some machines store the document until it has been delivered to the receiving machine. Others erase it if it can not be transmitted in a given number of tries.

Printers

There are three main types of facsimile printers:

Thermal printers - These printers use treated paper in rolls. The paper is a major operating expense, and is not as easy to write on or to file as regular bond paper.

Thermal transfer printers - These printers use bond paper and special ribbon cartridges. They are not as fast as thermal printers and cost more to operate.

Laser printers - These printers use plain bond paper and are faster, but costly to purchase. Printing costs, however, are lower than using thermal paper. Schools with heavy fax usage will likely save money over the life span of the machine using laser printers.

Multi-Tasking Machines

These machines can scan documents into memory and send documents from memory at the same time; others can not. This is not a universal feature nor is it essential; but it is useful if the machine is in a high-use situation.

Speed Dial

This is a feature on most machines. The only limitation is the number of phone numbers the machine can store. The lower limit could be twenty, but a hundred is not uncommon. Some machines can dial a prearranged list of speed dial numbers. An example would be lists for teachers, schools, jurisdictions or Alberta Education Regional Offices.

Fax mail boxes

This feature allows transmission to an individual at a remote fax location. The individual at the receiving end would have to enter a password to print the message. This has benefits when sending tests and confidential records.

Broadcasting

This permits a single message to be sent to several locations. The initial call is made to a central machine, which then sends the message to a preselected list of contacts.

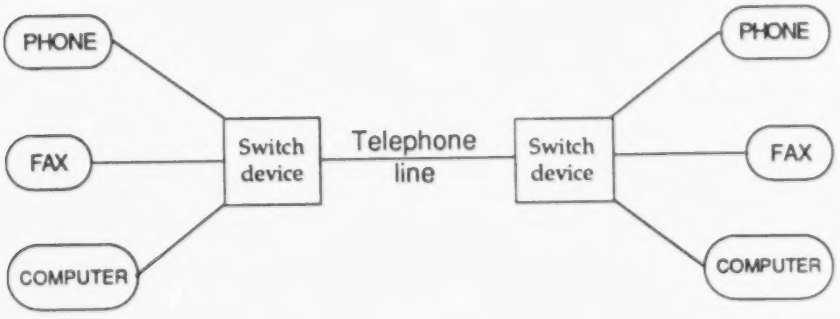
Line Sharing

Although the same telephone line can be shared by the fax and the telephone by alternately unplugging one and plugging in the other, this practice is not recommended. Nevertheless, some electronic devices on the market allow both fax and phone to be connected at the same time, and will automatically direct the incoming message to either, whichever is being called. This type of system should not be used if both the fax and the phone are in constant use. A fax machine with its own line is available any time for sending or receiving documents.

Computer-Linked Facsimile Machines, Fax Boards, and Fax Modems

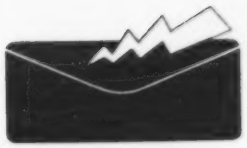
Some products allow a computer to function as a fax machine by using an external fax modem or an internal fax modem board. This is a fairly recent development, and many suppliers have models which can use the computer for input, output (on the computer's printer), and storage. This may be a preferred system for some computer users. It is a versatile combination, but the simplicity of stand-alone fax machines is lost, and text must be typed or scanned into the computer. Some low cost systems will only send fax transmissions, and can not receive transmissions.

The following diagram shows how several devices may be hooked up to a single telephone line with an appropriate switching device to allow for single lines to be used, thus saving on installation costs. The price, however, is a loss of flexibility, because only one device can be used at any one time. In low usage areas, such as in a home, this is not a problem.



Telephones, facsimile machines, and computers can all send and receive information using telephone lines for transmissions. New developments in telephone lines such as ISDN (Integrated Services Digital Network) lines will allow high speed transmission of voice, video, and digital information.

Electronic Mail



Electronic mail provides a rapid form of text communication in a service that is usually available twenty-four hours per day.

Electronic mail is a system of computer communications. Using a computer, a modem, and the necessary software, an individual can transmit messages from one computer to another. Electronic mail can serve some of the same functions of conventional mail and telephone services. It transmits a message to someone's electronic mail box. The receiver of the message can retrieve the message whenever it is convenient. The message can be read on a computer screen, saved in one's own computer, or can be printed out.

Electronic mail has many advantages:

- It is fast, instant in most cases.
- There is no equivalent to a game of telephone tag, repeatedly calling someone until a connection is made. With electronic mail the message waits until the receiver uses the system.
- Time and distance are no longer barriers to communication.
- Messages may be broadcast to several parties simultaneously.
- The system is economical. Electronic mail can cost much less than conventional mail, long distance telephone calls, facsimile transmission or courier services. Heavy users can often receive special rates from telephone companies.
- It is effective and efficient.
- It allows "conversations" which could not occur in other modes.
- Electronic mail is versatile. For example, in the Envoy 100 system used in Canada, electronic mail can send a message from one computer to another, then to a fax machine to send a "hard copy" through the Canada Post system to several people at once.

In an educational setting, electronic mail can be used to eliminate repeated attempts to connect by telephone due to differing schedules and timetables from one school to another. In different time zones, it can become even more difficult to connect by phone. Electronic mail, however, provides a rapid form of text communication in a service that is usually available twenty-four hours per day. This means that both senders and receivers of messages can use an electronic mail system when it is convenient, either for sending or retrieving mail.

A messaging host system allows computer users from many locations to communicate with each other through a computer and a modem connected via telephone lines. Messages can be sent privately from one user to another on electronic mail (e-mail) or they can be shared with other users on the network in a conference electronic mail box where all users can participate in the discussion of a topic.

Computer Conference

The design of the computer conference must be given careful consideration. It will be successful only if learning activities are planned to make use of its strengths and minimize its weaknesses. Many of the reported weaknesses are embedded in the particular hardware and software, not in the concept of computer conferencing itself.

A computer conference is a means of computer communications via electronic mail which accommodates the participation of many users. Often, a computer conference is about a specific subject or area of interest. Anyone participating in the conference can send and receive messages whenever convenient.

Like a live conference of people sitting around a table or discussing a subject in a classroom, messages in a computer conference are received by all participants. Unlike a live conference, however, participants do not have to be in the same place at the same time.

The computer conference is a technique for communication and learning. It supplements face-to-face instruction and adds another component to distance learning delivery. Computer conferencing is independent of place and time. It facilitates group interaction and provides simultaneous contact with many people at one time.

With computer conferencing, students become active participants in the communication process. Students present and respond to the ideas advanced by their peers, by teachers, and by anyone participating in the computer conference.

Students participate on equal levels. In most studies, the results show an equitable distribution of messages being sent. This contrasts sharply with the face-to-face situation where student-originated discussion may be dominated by one or two persons.

Student interaction need not be time dependent. Students have access to the conversations listed on the computer conference at any time . Computer conferences can be available seven days a week, any time of the day. This means that students are not confined to participating only during the school day when time permits.

Computer conferencing is independent of time. It allows the user as much time as required to check notes, to locate reference books and to organize thoughts in a clear, concise form before sending a message to a computer conference. Messages may be read on the computer screen, stored for future reference, or printed out, as desired.

A significant aspect of this medium is the focus on the message, as opposed to the messenger. This helps to reduce the discriminatory communication patterns often associated with gender, race, and socio-economic factors. The anonymity afforded by a computer conference, other than a person's name, contributes to the equality of the participants.

This communication medium is not without its weaknesses. The medium does not facilitate problem solving and decision-making activities. If these activities are to be carried out, an alternative medium should be considered. A possibility would be to hold the preliminary discussion on the computer conference system and turn to the teleconference for the final debate.

Audiographic Teleconference

Audiographic teleconferencing is another application using telephone lines to transmit information electronically. In this respect, audiographics is like facsimile transmission, computer transmission of data from one place, or even a conventional teleconference. It is different in that it combines voice and image transmission.

Little use is made of audiographic teleconferencing in Alberta schools at present, but innovative projects are being undertaken to explore its possibilities in distance learning delivery.

The concept of an audiographics system is very simple: both audio (sound) and graphics (pictures) are transmitted simultaneously. An audiographic system carries the audio signal (usually voice) and displays a graphics signal (such as diagrams and charts). The hardware is more complex than that in a teleconference system, which carries voice only.

An audiographic system includes a writing and pointing device such as a graphics tablet, a personal computer to run the software, a transmission device (modem), and a display such as a color monitor for the computer. Telephone lines are used for transmission. Advanced systems may use satellites to transmit voice and graphics.

Uses

Distance learning courses which are solely print or audio are limited because they do not appeal to all the sensory channels the students use in a regular classroom. Society has become very visually oriented, and research shows that many students are visual learners. To make distance learning a richer learning environment, appeal should be made to both auditory and visual sensory channels.

Audio enhancements were added to distance delivery by the teleconference; the video enhancements can be added by graphics. Mailed or faxed diagrams and photographs can substitute for static diagrams but not for the complex diagrams which are built component by component in audiographics on the color screen of a computer display. As society becomes more media literate and sophisticated in the use of media, there is a higher demand for quality visual information. A computer can help meet this demand with quality images to enhance a course.

Types of Stored Image

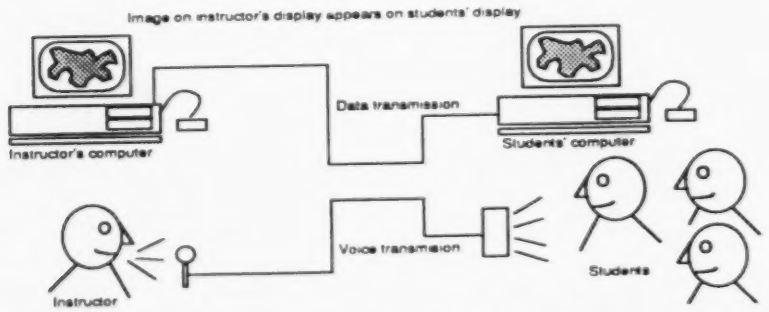
Audiographic systems can be used to prerecord images from editing sources and to transmit them during the lesson. The simplest technique would be to scan the image into the personal computer and have it stored first on computer disk, then presented in a sequence much like a slide show. Copyright laws must be respected when doing this kind of work.

The personal computer can store and transmit computer images developed with graphics programs. Color features in many software programs can be used to enhance images to give them more impact. Images can be manipulated to emphasize objects. Techniques include such things as fades, wipes and other video effects. These are standard techniques which have been used for several years in television production and can be used effectively in an audiographic environment.

Computer-controlled graphics programs can be used to develop images with overlays which add to the image. For example, the teacher could start with a diagram of a basic object, then add the remaining components one at a time while explaining their roles. The focus can be drawn to the objects with the pointer or by highlighting the object during the explanation. Depending on the software used, the visual can be animated to enhance the impact and to show an abstract concept in a concrete manner.

Although most presentations are prepared and developed well ahead of the time, full-featured audiographic systems allow images to be created on an electronic blackboard available to all work stations simultaneously. This allows a teacher to watch students work on a mathematics problem, stop them when necessary, and show them where the mistake was made and then allow them to carry on.

The following diagram represents a basic audiographics system



In this case, two telephone lines are used. One line carries the remote instructor's voice in two-way conversation with students in one school. The other line carries visual images from one computer to the other. Graphics and text on the instructor's computer appear on the students' display. Students can enter computer information which will appear on the instructor's display. In more complex situations, an instructor can deliver information to students at more than one location. Some audiographic systems use only one telephone line. In such a case, voice transmission is interrupted for a few seconds when a computer graphic is transmitted.

Technical Considerations

Audiographics is relatively new, and several systems capable of delivering distance learning by this mode are being marketed. The systems are not always compatible with one another, so any system which is purchased should be complete with all components. This is not to say that any one system is better than the other; it is just that brands A, B, and C can not necessarily be hooked up on the same teleconference bridge and used. This may sound confusing, because some of the actual components may be interchangeable, yet the complete system is not compatible. This is most likely the result of software which resides on the personal computer, not the hardware.

Video

Television can be a powerful medium for teaching and learning. Schools in Alberta, depending on location and facilities available in the school, can use television in various ways, some of which are identified below.

ACCESS Network

The ACCESS Network, operated by the Alberta Educational Communications Corporation, provides schools with a number of services. These include broadcast television, programming on local cable TV systems and satellite broadcast. Dubbing services provide schools with copies of programs.

The Night Owl schedule provides late night and early morning broadcast of ACCESS programs for schools to videotape locally at no cost for classroom and teacher in-service use. In addition, ACCESS also operates CKUA radio with province-wide broadcasting on AM and FM Stereo.

Full details of ACCESS services are provided in the *Video and Audio Prospectus* published by ACCESS and provided to schools. Additional descriptive information about programming can be found in the ACCESS Network *Times*.

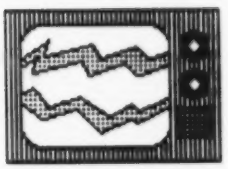
For copies of ACCESS publications and further information, contact:

ACCESS Network
Media Resource Centre
295 Midpark Way S.E.
Calgary, Alberta
T2X 2A8

Telephone 256-1100

Broadcast television

Open broadcast



When equipped with the necessary antenna, schools can receive open broadcast television. When broadcast times do not coincide with classroom instruction (they usually don't), a video cassette recorder can be used to tape the program for playback later at an appropriate time for instruction. Schools should be aware that copyright restrictions may apply to such recording activities.

Cable access

Cable television service is available in most Alberta schools. One advantage of cable is that it usually provides additional channels. Like broadcast television, cable programming can be videotaped with a cassette recorder. Again, schools should be aware of copyright conditions that apply.

Satellite reception

In order to receive satellite broadcast television, schools need a satellite antenna. The most common device used for such reception is the satellite dish receiver. The majority of Alberta's distance learning schools are equipped with a satellite dish. This permits reception of many commercial broadcast channels, ACCESS satellite broadcasts, and special satellite programs. Schools can receive programs according to the band on which they are aired, if they have the appropriate satellite dishes.

Videotape

All of Alberta's distance learning schools are equipped with videotape equipment, the most common being the VHS video cassette machine. Videotape makes available a vast choice of television programs at low cost from such sources as ACCESS. An advantage of videotape is that it can be scheduled for use in the classroom when required. Likewise, it can be scheduled for individual or small group viewing.

Videodisc

Videodisc provides a high quality picture with extremely fast access to any individual frame on the disc. The freeze-frame capability of videodisc allows for high quality still picture presentation; however, few schools are equipped with videodisc players, and the selection of programs on disc is much more limited than on videotape. Unlike videotape, however, videodisc can not be used for recording material. The disc provides playback capability only.

Videoconference

Although the technology exists for simultaneous linking of parties at different locations to provide a videoconference in which all participants are both seen and heard, this is not yet an application for schools. It requires special equipment and transmission facilities; however, with new developments in transmission systems, videoconferencing might be regarded as a communication and instruction approach for the future.

Local Video Production

Television is more than just a medium of playback. Whether it be a simple record of a school field trip, a communications project for language arts, a scientific experiment, or a visual record of the school play, television is also a medium of production. Most schools in Alberta are equipped with a video cassette recorder. This accommodates playback at a suitable time for recorded video tapes. When the unit is connected to a video camera, local production capability exists.

Hints on making good TV:

- When selecting the shots, don't tell the viewer what is already obvious; i.e. the narrator should not read a simple sign.
- Use a tripod whenever possible for steady shots.
- Change the angle when zooming in to a close-up from a long shot.
- Panning should be done with extreme care, and only when needed.
- A group shot should have a maximum of four to six people in it.
- Tape a dress rehearsal of a play to get plenty of light.
- Shoot more than you need, and let the editor cut it down.

Video production is a complex process, and producing good educational programs can be difficult; however, simple productions are possible with a camera and a VCR. Furthermore, the new hand-held camcorders which combine a camera and a videotape recorder, make it less complicated than ever to record television.

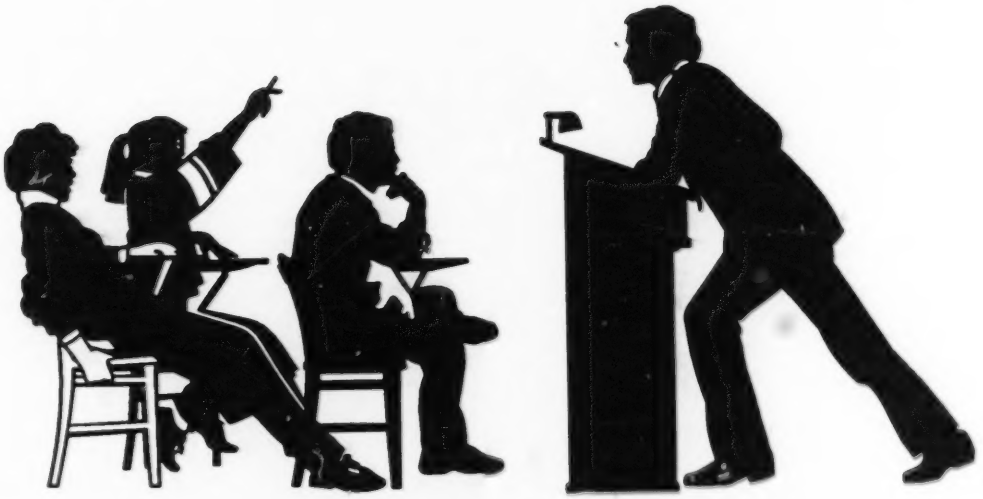
Although the VHS format is prevalent today, many manufacturers are producing 8mm equipment and tape. This is generally less costly, and may become more popular in the near future. One advantage the 8mm has is that it can easily be connected to existing VHS hardware. Prospective purchasers should investigate fully before committing themselves to an expensive purchase.

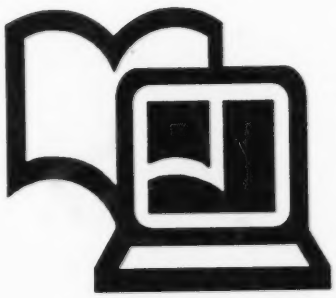
An alternative to purchasing is leasing the necessary hardware. This approach eliminates the need for a large capital outlay, and also ensures the latest in technology, since the equipment is rented only as needed. Thus, when a new piece of technology comes onto the market, it can be accessed by even the smallest of budgets.

The renting or leasing option is even more applicable to the editing function. The cost of owning the editing equipment and suite is virtually prohibitive to the small school; however, the hourly rental of the equipment and personnel may be well within limited budgets. Should there be a perceived need to purchase this equipment, however, there are some good editing machines available for local needs. Thorough investigation will reveal good equipment that is affordable.

Distance Learning

Classroom Planning





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Classroom Planning

The design of a distance learning classroom is determined by the elements which will be used in the classroom. Consideration may be given to the rapid changes in technology so that planning for them may occur. The classroom should be designed for new technology with minimal cost and disruption. The technical specifications for current and developing technologies appear in *Distance Education: A Program and Facility Study*, prepared for Alberta Education.

Well-organized facilities and resources are vital to the success of distance learning programs.

The pilot projects in distance learning in 1987-89 emphasized the need for a well-planned space in which students have access to an individual study space, small group work areas, supervised testing areas, resources, and equipment. The distance learning facility becomes a centre from which the students work. A central location with ready access to the library and school office is desirable.

The key to a smooth operation is ready access to equipment and resources such as audiovisual equipment, a science laboratory facility, a teleconference suite, telephone access, textbooks, a typewriter, word processor, and a computer.

In conventional education environments, the teacher usually does the planning and organization. In distance learning environments, both teachers and students become involved. Few students, however, are ready for this demanding responsibility. Their learning scheme is not as neatly packaged and well-timed as a teacher's lesson plan. All persons involved in distance learning, therefore, must ensure that the necessary resources are easily accessible. Experience has shown that any barrier can impede progress, and if allowed to occur on a regular basis, will generally cause the student to fall behind schedule.

Operations

A distance learning program uses a variety of staff in administration, teaching, support staff in the school office, and even work-experience students in the distance learning room. The specifics of any job may vary with the school jurisdiction. One school district may operate quite differently from another, and experience has shown that a number of jobs by each person involved are commonplace. On the next page are some typical activities of staff in a distance learning program. These activities may help define the roles of specific people in the program.

Superintendent's Responsibilities

The school superintendent is the senior manager at a local level in implementing a distance learning program. Activities may include:

- Identifying distance learning schools within the jurisdiction.
- Consulting with principals regarding the funding, staffing, and equipping of schools.
- Determining the courses and credits offered, and the number of students in the program.
- Representing the jurisdiction at consortium meetings, and maintaining contact with Alberta Education officials as required.

Distance Learning Teacher's Responsibilities

The job of the distance learning teacher, either school-based or off-site is a professional teaching position. Activities may include:

- Marking students' lessons and examinations in the shortest manageable turnaround time.
- Responding to student inquiries in the shortest manageable turnaround time.
- Emphasizing that both the tutoring and marking functions are important to the student's success.
- Keeping records on student assignments and progress.
- Contacting students by telephone, teleconference, and computer individually or in groups to establish personal rapport and effectiveness as a teacher.
- Preparing and marking tests for administration by the local school distance learning coordinator.
- Assigning final marks and submitting statements regarding lessons marked, students tutored, and line charges for telephone, facsimile machine and telephone answering machine.
- Reviewing and resolving with the distance learning coordinators those issues and problems experienced by distance learners.
- Consulting with staff of the Distance Learning Implementation Unit at Alberta Distance Learning Centre about issues concerning course delivery.
- Using instructional technologies which contribute to the effectiveness of teaching in distance learning.

Distance Learning School Coordinator's Responsibilities

At the school level, the Distance Learning Coordinator is the key person in the management and success of the school program. Activities may include:

- Identifying, registering and counselling students who are enrolled in or who wish to enrol in distance learning courses.
- Consulting with the principal to develop timetables and classroom assignments for all students who are enrolled in distance learning courses.
- Providing instructional assistance and tutoring, as experience and expertise permits.
- Marking lessons, if qualified, and if no subject specialist distance learning teacher is available.
- Keeping records of assignments and lessons completed, submitted to teachers and returned; and recording of marks and teacher comments.
- Managing a school distance learning budget.
- Maintaining contact with distance learning teachers about issues and problems experienced by distance learning students.
- Administering and processing distance learning examinations .
- Consulting with staff of the Distance Learning Implementation Unit at Alberta Distance Learning Centre about issues concerning course delivery.
- Coordinating off-site and community resources for use in distance learning courses.
- Encouraging the use of instructional technologies which contribute to the effectiveness of teaching in distance learning.
- Evaluating distance learning activities in the school.
- Ensuring that students adhere to schedules.

Principal's Responsibilities

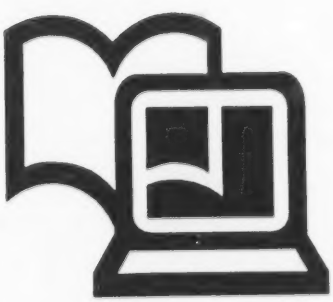
The Principal is in a position to provide support critical to the success of a distance learning program in any school. Activities may include:

- Timetabling of the distance learning coordinator position in a manner that will allow sufficient time and opportunity for the coordinator's duties.
- Timetabling distance learning classes for maximum effectiveness.
- Identifying responsibilities of the distance learning coordinator, in consultation with the coordinator.
- Overseeing all aspects of the distance learning activities in the school and maintaining liaison with Alberta Education distance learning officials.

Distance Learning Consortium Coordinator's Responsibilities

As school jurisdictions establish local distance learning networks or combine with other school systems to form a consortium, the distance learning director or coordinator becomes pivotal to the program's success. Activities may include:

- Arranging with participating boards for employment of teachers.
- Coordinating in-service programs to inform and equip teachers involved in the program.
- Providing information concerning the program.
- Collecting data on courses and student enrolments.
- Establishing consortium purchasing and maintenance contracts.
- Maintaining liaison with interested and appropriate parties such as Alberta Distance Learning Centre, Alberta Education Regional Offices, Alberta Government Telephones and ACCESS Network.
- Coordinating inter-school teleconferencing.
- Assisting school staff and distance learning teachers as required.
- Reporting to the consortium steering committee as requested.



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Evaluating Distance Learning

The Provincial Scene

Evaluation of the distance learning program in Alberta has concentrated on the project schools in southern and northern Alberta. These were schools included originally in the Distance Learning in Small Schools Project and in Distance Learning Project North.

Evaluation of Phase 2 of the Distance Learning in Small Schools Action Research Project (184 pages) and the *Evaluation of Phase 1 of Distance Learning Project North* (40 pages) are available from the Learning Resources Distributing Centre, 12360 - 142 Street, Edmonton, Alberta T5L 4X9. Cost is $5.25 for both.

The Local Scene

Although enthusiasm for distance learning runs high throughout Alberta wherever the program has been implemented, little has been done in formal evaluation of distance learning at a school system level. Several jurisdictions, however, have conducted their own internal evaluations.

Formal evaluation by Alberta Education is usually done at the request of a superintendent or school board to assess some aspect of the jurisdiction's operation. With 1989-90 being the first year that most schools eligible for funding participated in the program, it is likely that it will be some time before extensive evaluation is undertaken.

The program will need some time to settle in and become part of the normal way in which the school offers education. In 1990, only one school system had undertaken a formal evaluation of distance learning in its schools. A second system followed in 1991.

For schools or jurisdictions which wish to make an assessment of their distance learning program, Appendix B contains sample questions which may be of use in structuring a questionnaire format to gather information. These are suggested as a guideline only and may be modified as required to meet local requirements.

The questions are targeted at the school principal, the school's distance learning coordinator, teachers in the program, students and parents.

Ten Tips for Distance Learning

The April, 1989 issue of *Electronic Learning*, published by Scholastic Inc. in New York, featured a cover story on distance learning. Included in the feature were "Ten Tips for State-wide Distance Learning" from a report called *Distance Learning: The Sky's The Limit*, published by the New York State Legislative Commission on Science and Technology in September, 1988.

The ten tips relate to what is happening in distance learning in Alberta. It is interesting to see that our American colleagues have many of the concerns that we have. It is also encouraging to note that many of these tips are being implemented in Alberta.

The following points have been adapted from those ten tips, with permission, and in some cases are quoted verbatim:

1. Consider establishing a task force which can assist districts and institutions in planning, creating, and implementing distance learning programs.

2. Officials, administrators, and educators must keep abreast of changes in distance learning technology and the advances in computer-aided instruction.

3. A task force can create and produce a series of packaged training programs that instruct teachers, administrators, and technicians on the planning, design, operation, and analysis of distance learning projects.

4. Rigorous evaluation procedures must be undertaken on a regular basis by participating districts and institutions.

5. Create the framework to determine how funds are distributed.

6. There is a need for wide and comprehensive planning involving a broad range of institutions and individuals.

7. It is imperative to build on existing distance learning systems and to utilize these networks to their greatest capacity.

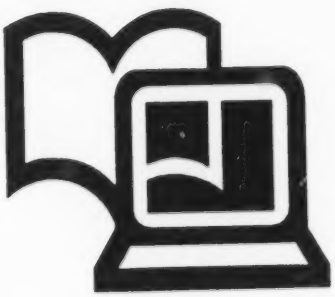
8. There is a need for more comprehensive legislation and funding.

9. Interested parties in distance learning networks must not become overly enamoured with the technology of the system.

10. There is a need to create consistent reporting practices between the participating institutions and the appropriate authorities.

Distance Learning

A Selected Bibliography



A Selected Bibliography

Alberta Education has produced several publications on the subject of distance learning. The following may be of use in providing more background and information.

Perspectives on Distance Education, 69 pages, including bibliography, produced as a discussion paper "to stimulate thought and discussion on the future of distance education in Alberta", July 1987.

Distance Education: A Program and Facility Study, 86 pages, including bibliography. An overview of the purpose of distance education with an emphasis on technology and facility design. May 1988.

Evaluation of Phase 1 of the Distance Learning in Small Schools Action Research Project, 128 pages. A report on the implementation of distance learning in the original 13 participating schools in southern Alberta. October 1988.

Evaluation of Phase 2 of the Distance Learning in Small Schools Action Research Project, 184 pages. A report on the implementation of distance learning in the original 13 participating schools in southern Alberta. October 1989.

Evaluation of Phase 1 of Distance Learning Project North, 40 pages. A report on the implementation of distance learning in the original participating schools in northwestern Alberta. December 1989.

The above publications may be ordered from:

Alberta Distance Learning Centre
Distance Learning Implementation Unit
Box 4000
Barrhead, Alberta
T0G 2P0

Also of interest:

Audiographic Teleconferencing for Distance Education, 18 pages, including bibliography. Order from Product Management — Teleconferencing, Telecom Canada, Floor 7, 160 Elgin Street, Ottawa, Ontario K1G 3J4. Cost is $10.00.

"Motivation and Instructional Design: A Theoretical Perspective," by John M. Keller, *Journal of Instructional Development*, Available from the Association for Educational Communication and Technology, 1126 - 16 Street N.W., Washington, D.C. 20036

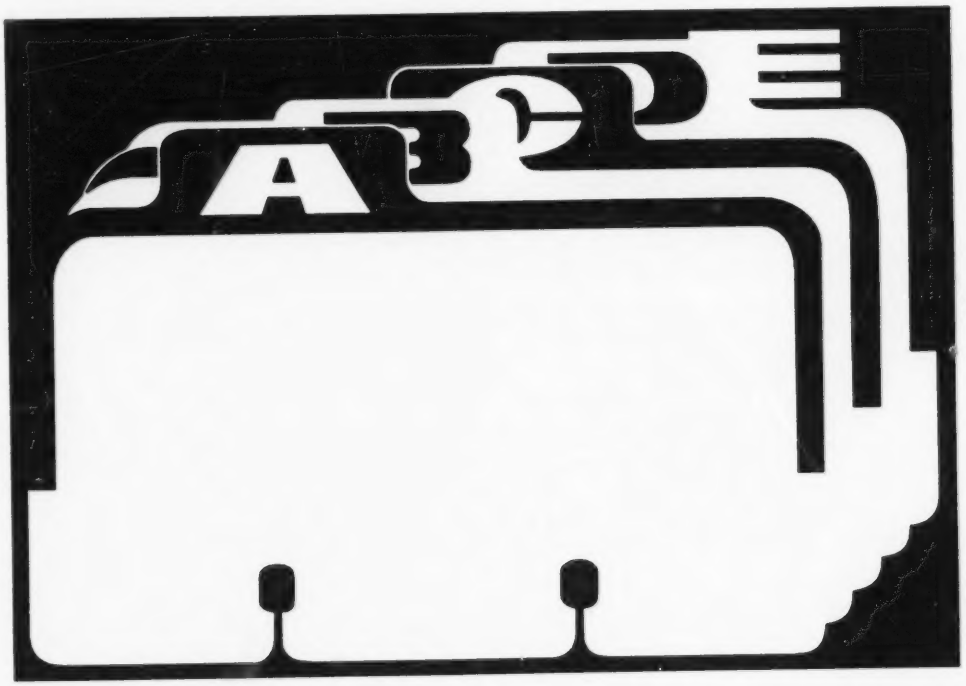
"The Systematic Process of Motivational Design," by John M. Keller, in *Performance and Instruction*, Nov/Dec 1987 issue.

"Strategies for Stimulating the Motivation to Learn," by John M. Keller, in *Performance and Instruction*, Oct/1987 issue.

In addition, an occasional newsletter, *Distance Learning*, is produced by the Distance Learning Implementation Unit of the Alberta Distance Learning Centre. This is provided at no cost.

For placement on the mailing list, contact:

"Distance Learning" Newsletter,
c/o Alberta Distance Learning Centre,
Box 4000,
Barrhead, Alberta
T0G 2P0.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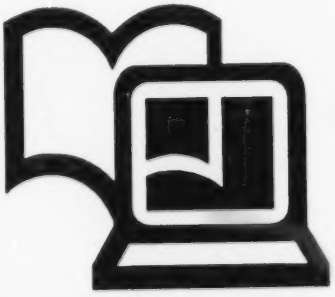

APPENDIX A

Appendix A consists of:

- Evaluation Questionnaires

These questions are intended to be part of an interview between the evaluator and the person involved in the program. They are not intended to be filled out in writing by the interviewee.

These questions are constantly being revised as feedback is provided from the users; therefore, they are presented here only as guides for jurisdiction use.

Schools or jurisdictions which wish to use these questionnaires as part of their evaluations, may reprint them or modify them to suit their individual needs.

Distance Learning Program Evaluation Questionnaire

The Student

1. What courses have you taken, or are you taking, through distance learning or correspondence?

2. Why did you choose distance learning courses?

3. Describe the involvement of teachers in your distance learning courses. For example, in registering, getting materials and resources, helping you with your problems, providing tutoring or instruction, marking, recording your progress, faxing lessons, and so on.

4. How often do you go to the following people to seek assistance with your Distance Learning courses? Indicate Very Often, Often, Sometimes or Never.

   a. Principal
   b. Distance Learning Coordinator
   c. Distance learning teacher on staff
   d. Other teacher(s) on staff
   e. Off-site distance learning teacher(s)
   f. Other student(s)
   g. Parent
   h. Other _____

5. Rate from 1-7, with 1 being the Most Useful and 7 being the Least Useful, the contributions to your distance learning classes made by the following:

   a. Principal
   b. Distance Learning Coordinator
   c. Distance learning teacher on staff
   d. Other teacher(s) on staff
   e. Off-site distance learning teacher(s)
   f. Other student(s)
   g. Parent
   h. Other _____

6. What happens if you didn't get distance learning course assignments done one time?

7. If you have taken more than one course through distance learning, did you find a difference between the courses? (e.g., the way they were taught, the materials available, difficulty)

8. How do your grades compare between distance learning courses and courses taught locally in your school?

9. When you were studying for your distance learning course(s) and needed help, how did you get it? (e.g., no help, local teacher in school, coordinator, off-site teacher, someone else.)

10. What qualities does a student need to be successful in distance learning courses?

11. What are two or three of the most positive aspects of the distance learning program?

12. If you could make changes in the program, what changes would you like to see?

13. Given your experience thus far, would you continue to take courses through distance learning?

14. Would you recommend to other students that they take courses through distance learning?

15. Any other comments?

Distance Learning Program Evaluation Questionnaire

The Teacher

1. To what extent and in what ways are you involved in the distance learning program?

2. Has your teaching assignment changed since the introduction of the program? In what ways?

3. What is the level of in-service and support for teachers in this school in the distance learning program?

4. Are there school goals for the program? What are they? Are they being achieved?

5. What are the duties of the principal and distance learning coordinator (they may be the same person) in regards to the distance learning program? Are these duties/roles well defined?

6. How does this school monitor and evaluate the program?

7. What indications have you been given that the distance learning program in your school is being effectively managed?

8. In what ways does the program benefit the students in your school? Consider both the students who enrol in distance learning courses and those who do not.

9. How could the program be improved?

10. Any other comments?

The Principal and the Distance Learning Coordinator

The following set of questions may be appropriate for both the principal and the distance learning coordinator in a school, since they often are the same person.

1. Why is your school offering distance learning courses?

2. What goals has your school set for the distance learning program?

3. What action plan has your school implemented for the program?

4. What are the duties of the principal and the distance learning coordinator (they may be the same person) in regards to the program. Are the roles well defined?

5. What distance learning activities make demands on your time, and how much time do they require?

   a. Annually?
   b. Each semester?
   c. Monthly?
   d. Weekly?
   e. Daily?

6. What assistance for these demands do you receive, and from whom?

7. Identify aspects of the distance learning program which most frustrate the administration of your school. To which would you give the highest priority for future goal setting and planning?

8. Identify aspects of the distance learning program which facilitate administration of the school.

9. What in-service would you see necessary to better prepare school administrators for administering a distance learning program?

10. Have you employed any additional staff in your school as a result of the program?

11. Has staffing in the school worked the way you hoped it would?

12. What level of satisfaction do you perceive your staff to have with the distance learning program? What about those not participating directly?

13. What is the level of in-service and support for teachers involved in distance learning in this school?

14. How do you monitor and evaluate the program in your school?

15. Describes the relationship between your school and off-site distance learning teachers?

16. In your opinion, has the distance learning program been an enhancement to your school?

17. In what ways could the program be improved?

18. What do you see as the future for distance learning in your school?

19. Do you wish to make any other comments?

Distance Learning Program Evaluation Questionnaire

The Parent

1. In what ways has the school kept you informed about the distance learning program?

2. How are you informed about your child's progress in distance learning courses?

3. Who would you contact at the school if you had a question about your child's progress in distance learning courses?

4. Is your child able to take the courses wanted, either by distance learning or in classes taught in the local school?

5. What are the strengths of the program?

6. How could the program be improved?

7. Any further comments?

Distance Learning brings students and teachers closer.

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